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THE BRITISH JOURNAL
OF
TUBERCULOSIS

Vol. XXII. January, 1928. No. 1.

ORIGINAL ARTICLES.

ACTINOTHERAPY AT THE FINSEN INSTITUTE, COPENHAGEN.

By AXEL REYN,
M.D.,
Medical Superintendent of The Finsen Medical Light Institute, Copenhagen.

The investigations of Finsen concerning the action of light on the living organism—investigations which were to become in time the basis of the whole science of modern "light-therapy"—were conducted at first by the aid of sunlight; and sunlight was the medium he used in his first attempts at curing lupus vulgaris by the means of concentrated chemical light. It did not take long, however, for Finsen to realize that, if light was to become of any real practical value for the purposes where his mind so clearly foresaw its vast possibilities, it would be necessary to substitute an artificial source of light for that of the sun, because in northern countries of no elevation to speak of—like Denmark—the latter is far too uncertain. During all the months of the year from September to April it is impossible to use the sunlight at all, simply for the reason that its contents in chemical—and more particularly in ultra-violet—rays is much too small; and while during summer, in Denmark also, it contains an abundance of chemical light, the days of constant, absolutely clear sunshine are few; and if the sun be covered by clouds or a haze, however light, great quantities of chemical light are absorbed, and a concentration of its rays becomes practically impossible.

As a substitute for the sun, Finsen chose the electric carbon arc light, which, like the sun, has a continuous spectrum, besides having a linear spectrum showing strong lines in the long-waved ultra-violet rays. And as a result of his investigations into the biological effects of light, Finsen suggested using the concentrated chemical light for local

treatment for diseases of the skin, and to use the light non-concentrated —as a general treatment in the form of "light baths"—for a number of various affections, notably for the treatment of tuberculosis. During the few years which it was given Finsen to live, he succeeded in working out the local light-treatment in all its details; and though death interrupted his work with the general treatment, the following years

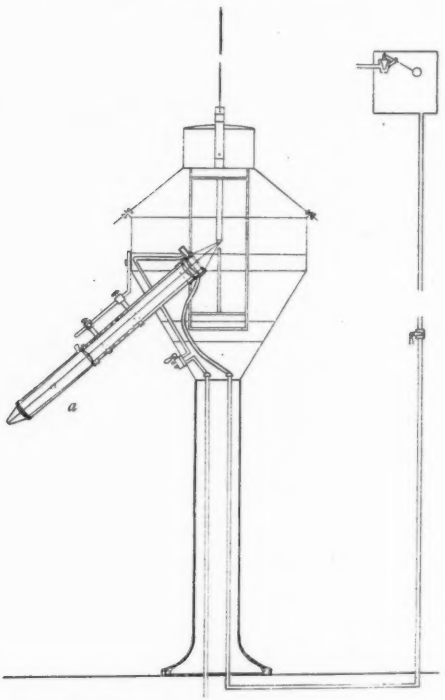


FIG. I.—ARC LAMP AS USED AT THE FINSEN LIGHT INSTITUTE.

This arc lamp is of 50 ampères, 50 volts, and is fitted with concentration apparatus. Four of these concentration apparatus can be placed around the lamp at the same time. *a*, Distilled water for absorption of the infra-red rays.

proved his ideas and suggestions concerning the "light-baths" to be correct also.

General and local actinotherapy have to be considered separately. The two treatments, indeed, are entirely unlike, both in action and principle. The local treatment aims—through irradiation of the diseased area with a very powerful light—at destroying the pathological cells, and thereby effecting a cure of the local disease itself.

By the general treatment it is sought to produce an action on the organism as a whole as a means of curing sundry affections of various kinds; there is no attempt at any particular irradiation of the affected locality, the only object being to have the whole of the body surface receive as much light as possible. The two methods of treatment are often combined, as I shall show in the following.

To enter here into a detailed description of the various lamps and

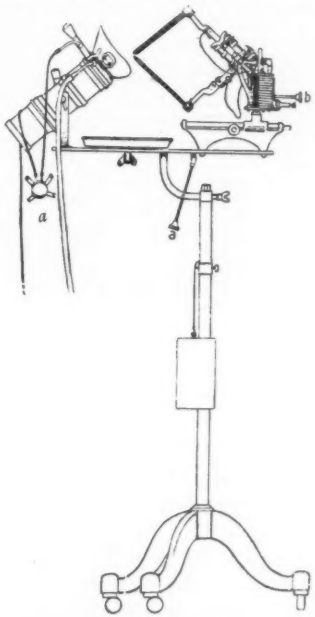


FIG. 2.—THE FINSEN-REYN LAMP.

The Finsen-Reyn lamp is used for the treatment of one patient at a time. *a*, Pressure apparatus ("compressor") for animatizing the skin, in order to prevent absorption of the chemical rays by the blood.

apparatus would lead us too far. I only wish to say that when it is a question of the treatment of a tuberculous case I use the carbon arc light, because a great many comparative tests have taught me that better results are obtained from the use of that source of light than from any other, both in local and general treatment. This must no doubt, be ascribed to the difference in the spectral characteristics of the various sources of light, and especially to the fact that the spectrum of the carbon arc light is a continuous one, which, consequently, contains *all* the rays—and notably all the chemical rays that penetrate well into the tissues; while, for instance, the mercury light, which is the

one particularly recommended by a number of other writers, has a linear spectrum, the lines of which are especially strong in the short-waved ultra-violet rays of feeble penetration.[1]

The forms of tuberculosis for which local light-treatment is used are, in the first place, lupus vulgaris and other tuberculous affections of the skin. Besides, it should be used in fistulous cases of glandular and surgical tuberculosis,[2] because in such cases a combination of the local treatment with the general one undoubtedly ensures a speedier healing of the fistulæ, while at the same time it precludes the danger of a lupus or a tuberculous wound developing in the area surrounding the latter.

In lupus vulgaris the results of treatment with concentrated carbon arc light have been extremely good. Thus, of the cases in which the affection was not more than four year old at the most, 70 per cent. were cured with fine results cosmetically; for the light-treatment is an elective one, which does not destroy the healthy tissues, and the healing, consequently, takes place without leaving any visible scar, unless the disease has already itself produced destruction beforehand. It is, therefore, of the utmost importance also that patients with lupus vulgaris should come under treatment at once, as soon as the disease declares itself, for it is one which in many instances proves exceedingly destructive; and as, in the overwhelming majority of cases, it occurs in the face, where its ulcerating process may destroy the nose, the lips, the eyelids, etc., the danger of any undue delay in bringing it to treatment will be easily understood. Also in the other forms of dermal tuberculosis—tuberculosis verrucosa, tuberculous ulcerations, and the so-called "gommes scrofuleuses"—the local light-treatment gives excellent results, with complete cure in nearly every case.

The general light-treatment—the "light-bath"—is used for various forms of surgical tuberculosis, for laryngeal and for certain cases of pulmonary tuberculosis. At the Finsen Institute we practically always use the carbon arc lamp as our source of light; only very rarely—on extremely hot summer days—do we use sun-baths. That we use the latter to so small an extent is due to the fact that our Institute is situated in a large city, where the chemical force of the sunlight is, of course, greatly reduced owing to dust and smoke in the air. If we were situated beyond the town, somewhere on the coast, we should be able to make use of sun-baths, not only on clear days, but even when the sun was slightly clouded over. The mercury quartz light, too, we use very little, because, as I have already said, the results obtained with it are much inferior to what we obtain with carbon arc light. We only use it for the treatment of patients who, for some reason or other,

[1] Reyn, *Acta Radiologica*, vol. iv., 1925.
[2] *Ibid.*, vol. iii., No. 6, 1924; and Ernst, *ibid.*, vol. i., No. 4, 1922.

FIG. 3.—A LIGHT BATH WITH 75-AMPÈRE CARBON ARC LAMPS.

This lamp enables a group of patients to receive a general light-bath at the same time, as indicated in the photograph.

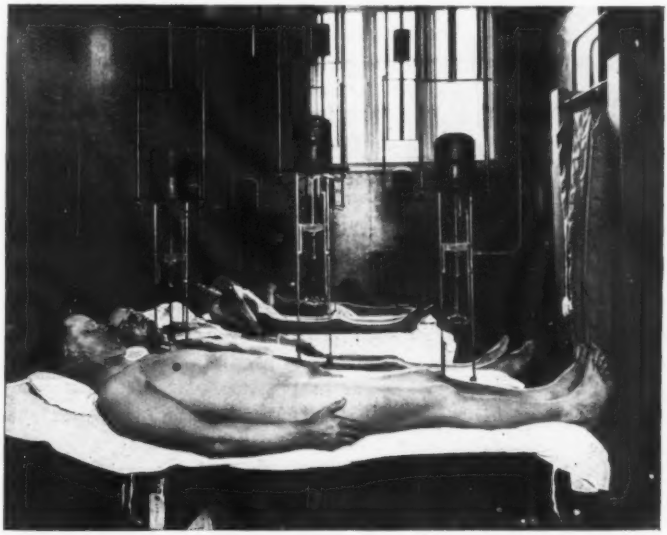


FIG. 4.—LIGHT-BATH WITH 20 AMPÈRE CARBON ARC LAMPS.

This illustration shows four males having a general light-bath.

cannot support the heat given off by the carbon arc; and, besides, we now and then use it for giving irradiation treatment to children, in whom surgical tuberculosis yields to therapeutical measures far more easily than in the case of adults.

But, as I have already said, the carbon arc light is the best. Our equipment of this is twofold. One arrangement consists of two lamps suspended side by side, each of 75 ampères (55 volts) direct current; the other comprises three lamps, likewise suspended side by side, each of 20 ampères, 55 volts, direct current. The former is used for patients who are able to sit up, and allows us to treat six patients at the same time; the latter we use for patients who have to take the treatment lying down. Of course, the 20-ampère lamps radiate much less chemical light than the 75-ampère lamps; but at the same time the heat emitted by the latter is much more intense. With the 20-ampère lamps the patients can, therefore, be approached much closer to the light; and, inasmuch as the intensity of light increases with the square root of the distance, the difference can thus be made up for, more or less. We use direct current, because the light from the crater is just as important as that from the arc, and when alternating current is used no crater is formed in the carbon.

The results obtained with carbon arc light-baths in the treatment of surgical tuberculosis at the Finsen Institute are almost equally as good as those obtained in Switzerland by Bernhardt and Rollier,[1] notwithstanding the fact that many of our cases have been out-patients coming and going from very poor homes, where they lived under anything but hygienic conditions. From this I believe it is justified to conclude that light is, indeed, one of the factors of greatest consequence in the sanatorium treatment of surgical tuberculosis, and—while fully realizing, of course, the importance also of the other conditions obtaining in the mountains and at the seashore, such as, particularly, the germ- and dust-free air—that the results obtained at sanatoria even thus favourably located may be still considerably improved if artificial chemical light-baths be used during those seasons of the year when there is no great amount of sunshine. At the same time, it should always be remembered, however, that the light-bath is but one element—though a very important one, to be sure!—in the treatment of surgical tuberculosis, and that all the other methods at our disposal for combating the disease should be brought into play as well besides it, as far as possible. Especially should all abscesses be punctured, or, if necessary, incised; any sequestra should be removed and deformities corrected. Neglect on these points will unavoidably make the results less good. In lupus vulgaris, for instance, it will very rarely be possible to obtain a cure by general light-treatment alone. It will always be necessary to use the local treatment in

[1] Ernst, *Acta Radiologica*, vol. i., No. 4, 1922.

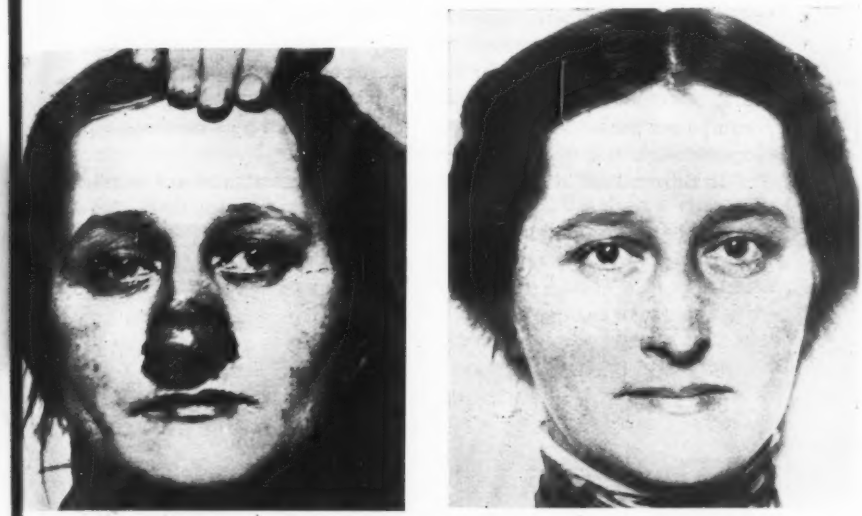


FIG. 5.—A CASE OF LUPUS VULGARIS: BEFORE AND AFTER TREATMENT.

5154: A woman thirty-two years old. Had been suffering from lupus vulgaris for one year. From November 18, 1919, to May 10, 1920, under local and general light-treatment: 177 séances local; 105 light-baths. Last observation, February 8, 1927.

FIG. 6.—A CASE OF LUPUS VULGARIS: BEFORE AND AFTER TREATMENT.

3749: A woman thirty-two years old. Had been suffering from lupus vulgaris for seven and a half years. From May 4, 1918, to March 7, 1919, under local and general light-treatment: 354 séances local; 105 light-baths. Cured. Last observation, May 17, 1927.

addition to and concurrently with the light-baths. But the value of the latter is strikingly illustrated, precisely by the results thus obtained. For while, as I stated before, the cure-percentage of lupus vulgaris cases not more than four years old, with local light-treatment alone, has been 70 per cent., the percentage of cures obtained by a combination of local with general treatment is 90 per cent.

In tuberculosis of the larynx, the light-bath treatment is of excellent

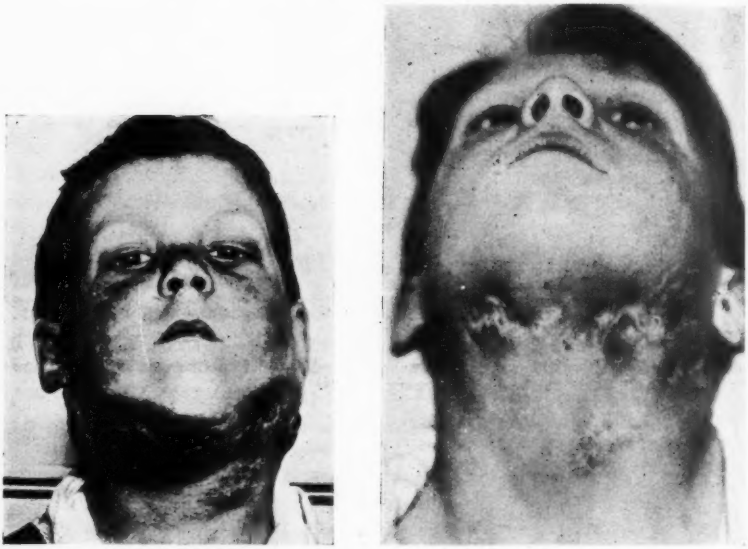


FIG. 7.—A CASE OF TUBERCULOUS CERVICAL GLANDS: BEFORE AND AFTER TREATMENT.

A boy eight years old. Had been suffering from glands for five years. Under treatment at seaside hospital for two and a half years running; showed improvement, but an extensive relapse set in shortly afterwards. Local light-treatment and light-baths: from August 17, 1918 to September 26, 1919, 157 *baths*; from April 25, 1921, to June 22, 1921, 21 *baths*. Cured. Last observation, August 2, 1926.

effect, and may, indeed, be said to be probably the best therapy existing, provided it is combined with suitable local treatment.[1]

In recent years, since the light-bath therapy was inaugurated by the Finsen Institute, it has been more and more generally adopted as a supporting treatment in cases of pulmonary tuberculosis, and there can be no doubt but that the stimulating effect which the light-bath has on

[1] Blegvad, *Revue de Laryngologie*, No. 4, 1923; and Strandberg, "Die Anwendung des universelles Lichtbades bei rhinolaryngologischer Tuberculose," *Strahlentherapie*, vol. x., 1919.

the organism must be extremely helpful there. We constantly see how tired and drooping individuals, with no appetite and more or less mentally dull, pick up both morally and physically under the influence of the general light-treatment; and those are factors which are of the very greatest moment, precisely in pulmonary tuberculosis.

In conclusion, I wish to emphasize the importance of seeing to it that, as far as possible, any individuals—and especially children—in whom the existence of tuberculosis is suspected, be given a chance of getting out into the country—either to the mountains or to the seashore—where they will have a chance of getting sun-baths; and if they cannot be sent into the country, they should be treated with light-baths—preferably carbon arc light-baths. Of such patients—for patients we must call them—I have treated a great many in the manner indicated with excellent results. They acquire an appetite, put on weight, and become both physically and mentally capable of doing their full work, after having for a long time been unable to stand the slightest sustained effort.

HELIOTHERAPY AND RENAL TUBERCULOSIS.[1]

By Dr. A. ROLLIER.

As a specialist in heliotherapy, I propose to attempt in this short paper to outline the rôle of this natural agency in the treatment of renal tuberculosis. Heliotherapy is now generally recognized as the treatment of choice for all extra-pulmonary tuberculous lesions, assuring, as it does, a cure both of the local tuberculous condition and the repair of the tuberculous "soil." In renal tuberculosis, however, heliotherapy plays a subsidiary rôle; it is to be viewed as a form of adjuvant treatment, which, however, is of great value.

Unilateral Renal Tuberculosis.

In every case of unilateral renal tuberculosis I always advise nephrectomy as soon as the diagnosis of tuberculous disease of one kidney only is established beyond doubt. Experience proves that the diagnosis of a one-sided renal tuberculosis is always much too long delayed. It is generally accepted that when clinical signs are evident and tubercle bacilli appear in the urine, we are no longer dealing with an early lesion, but have to deal with tissues already in a state of

[1] Substance of a communication on the application of heliotherapy to renal tuberculosis presented by Dr. Rollier of Leysin, Switzerland, to the Surgical Section of the British Medical Association at its Edinburgh Meeting, July, 1927.

advanced infection. This condition has probably been evolving for years without giving rise to appreciable clinical manifestations. Nephrectomy demonstrates this fact, and usually shows that the destruction in these cases of renal tuberculosis is much more advanced than clinical observation and laboratory data would lead us to suppose. An operation is therefore essential; and if the general condition of the patient is good and there be no clear counter-indication, delay is to be condemned because of the risk which the patient runs of infecting the bladder. In these cases of unilateral tuberculosis treatment by heliotherapy, though secondary, is none the less important. In the pre-operative stage it is indicated for those patients whose precarious general condition makes it probable that they will hardly stand the operation or will be likely to develop through diminished general resistance some post-operative complications. The length of pre-operative sun treatment, generally lasting for some weeks, will evidently depend on the greater or less degree of weakness of the patient and the rate of progress of the disease while under surgical observation.

Treatment in all cases of renal tuberculosis must be continued as long as the patient's condition remains precarious, and provided that there be no menacing increase in the symptoms from the kidney or bladder. Heliotherapy, which brings about complete repair of tuberculous tissues, improves the circulation and increases the general powers of resistance. It also develops a local cellular resistance in the region of the operation, and thus assists in lessening the risk of a tuberculous infection of the wound.

I insist also on the importance of preparatory heliotherapy when, as is often the case, the renal tuberculous involvement is accompanied by a pulmonary tuberculous lesion, whether this be of a quiescent, chronic or active nature. In all such cases preventative heliotherapy should be associated naturally with aerotherapy under the best climatic conditions; these natural agencies provide the most effective means for the restoration of the general health, and particularly for consolidating pulmonary lesions. Heliotherapy insures against the aggravation of active disease, and prevents the flaring up of slumbering lesions which are in danger of becoming active under the strain of a difficult operation or prolonged narcosis. Pre-operative heliotherapy is further indicated in all cases of unilateral renal tuberculosis when cystoscopic or functional examination and catheterization of the ureters leaves any doubt as to the integrity of the other kidney.

Treatment by heliotherapy is particularly recommendable in those frequently met with cases of renal tuberculosis which are complicated by genital tuberculosis, and when the seminal glands, and particularly the prostate, are extensively diseased, thus obliging us to put off cystoscopy to avoid the possibility of trauma of the prostate, with the risks

of a general infection. In such cases it would be imprudent to consider the kidney affection as an independent lesion, for it is but one manifestation of tuberculous disease affecting the whole genito-urinary system. One may reasonably consider before operation if a risk should be accepted which entails aggravating the condition of the lower levels, in the hope of curing the higher levels of the genito-urinary system. It is therefore essential before intervening surgically to treat the concomitant lesions with a methodical course of heliotherapy; this will place the organism in the best state of defence, and finally make possible cystoscopy and nephrectomy without undue risk to the patient of a generalization of tuberculous disease.

Finally, heliotherapy is to be advised as a particularly desirable post-operative treatment of unilateral renal tuberculosis. It has undoubtedly a preventative action on the genital organs and the remaining non-tuberculous kidney, and furnishes an effective contribution to the healing of a tuberculous cystitis, whether in association with medical treatment or alone. Heliotherapy certainly exercises a cicatrizing action on the stump of the ureter, which so often shows residual ulceration resulting in a discharging sinus or a persistent cystitis. Heliotherapy here intervenes in the most direct way through the analgesic, bactericidal, and sclerogenic action of the solar radiations. This local treatment, which we have named the "Pansement solaire," has the great advantage of killing the tuberculous and other germs, and at the same time stimulating the cellular defence, while other antiseptics have often a harmful effect on the tissues and may irritate after absorption the remaining kidney. Heliotherapy has always given us excellent results, even with chronic gaping wounds, extensive and deep, and even when covered with ulcerations and tuberculous granulations. We separate the lips of the wounds with a separator or with broad strips of sticking-plaster to allow the sun's rays to penetrate the depths and to avoid a premature superficial closure forming a closed pocket favouring purulent retention. Such extensive wounds heal often with a linear scar, elastic and supple, and often are hardly visible in the pigmented skin.

Bilateral Renal Tuberculosis.

In bilateral tuberculosis heliotherapy is, in my opinion, the treatment of choice. By virtue of its eminently tonic influences, solar radiation associated with aerotherapy gives the organism the best chance of fighting with success against the danger of extension of the tuberculous lesions. It reduces them to a quiescent condition, thereby adding oftentimes years to the patient's life; its analgesic action on ulcerations of the bladder is particularly welcome. It is in these cases of bilateral tuberculosis that we encounter so often advanced infection implicating the inferior genito-urinary organs; this is a complication which pre-

ventative heliotherapy would have avoided. While the renal lesions tend to become stationary, we see a steady regression and improvement of the prostatic and bladder lesions and their clinical symptoms.

These are, briefly sketched, the chief indications for the use of heliotherapy as an agent in the treatment of renal tuberculosis. But if this treatment is to be efficacious, it must be conducted according to the strictest posological rules and with a rigorously applied technique. These rules are of capital importance, for there is no therapeutic method which demands more tact in its administration or a stricter individualization than does the sun cure. The main principle of posology is that the reactions, both local and general, produced in the organism by the sun should never be so intense as to become dangerous. This demands of the medical practitioner an active personal control of his patient combined with exact individualization: careful examination of the patient on arrival, slow, gradual adaptation first to the mountain air and then to the Alpine sun, careful study of the reactions which may occur in the course of treatment and which should enable the doctor to measure the rate of progression.

Heliotherapy, the direct application of the sun rays on the integuments, should involve the whole surface of these if we are to obtain a complete renovation of the skin. We consider the part played by the integuments in the process of healing to be of capital importance; the skin is at the same time an organ of circulation, of innervation, of elimination, of secretion (these last two functions being particularly important where the kidney is concerned), of immunization, and finally it acts as an endocrine organ and provides the body with an internal secretion. Contact with the air and sun can alone restore to the skin its essential physiological functions. But general insolation, such as I recommend, to be efficacious must be prudently applied and be progressive and in accordance with a precise technique. The main principle is to begin always with the lower extremities, which are less sensitive; then to expose successively the different regions of the body in short sessions, repeated three times at an interval of five minutes. In this way one obtains very gradually insolation of the whole surface of the integuments without risking accidents. But while general heliotherapy may be prolonged for from two to three hours, local heliotherapy—that is to say, the application of the sun to the damaged region—must be strictly dosed in order to avoid all excessive reactions. This local insolation should rarely exceed twenty to thirty minutes for the kidney or bladder. Heliotherapy thus practised, and which we have named derivative, exercises a remarkable decongestive action on the thoracic viscera, and has, moreover, a marked analgesic effect on the bladder. It is, indeed, evident that our technique is always susceptible of modification; particularly is this the case in tuberculosis of the

kidney and bladder, in which cases it must be adapted to each case with all possible care and circumspection, inasmuch as we are dealing with very sensitive regions of the body.

When the genito-urinary complications confer on the disease a character of gravity which affects the patient's morale, heliotherapy, by assuaging the pain and increasing the sensation of well-being, often restores courage and affords a new interest in life, with increasing confidence in the efficacity of his treatment, and this is already a step towards cure. To assist this psychic renaissance, we recommend all our patients to take up some form of work or occupation. This occupation-therapy has proved to be a wonderful psychotherapeutic agent, provided it is used as a method of treatment and with appropriate dosage. Thanks to the financial return it procures for the poorer patients, it affords them a new self-respect, transforms their morale, and, through the intimate connection which exists between the psychical and physical, causes in most cases an evident general improvement both in mind and body. A methodical association of sun cure with work cure confers on heliotherapy a social value which deserves to be recognized; for, wherever the tuberculosis problem is discussed, the question of cure always leads one back to a consideration of tuberculosis as a social problem.

THE TREATMENT OF SPONTANEOUS PNEUMOTHORAX.

By L. S. T. BURRELL,

M.D., F.R.C.P.,

Physician to the Royal Free Hospital and to the Brompton Hospital for Consumption and Diseases of the Chest.

Pneumothorax may result from a variety of causes, but of these tuberculosis is by far the most common, and accounts for over 80 per cent. of all cases. Sometimes the onset is sudden, the patient being stricken with severe pain and great dyspnœa; in other cases it is quite gradual. Recently I saw a man with a completely collapsed right lung, whose only complaint was slight shortness of breath for about a week, but not sufficient to keep him from work. In such cases, where there are very few symptoms, the lung usually re-expands in a few days, and a period of rest is all that is required. If, however, the symptoms persist and there is no re-expansion of lung after a week, I think it is best to remove some of the gas from the pleural cavity in order to assist re-expansion. It is important to remove the gas slowly and to stop if the patient begins to cough. If the intrapleural pressure

is lowered too quickly the patient may develop a paroxysm of cough with frothy expectoration and very severe dyspnœa lasting several days. After some 600 or 700 c.c. of gas have been removed, X-ray examination will often show that the lung which was previously collapsed is partially or even completely re-expanded. If this is so an uneventful recovery may be anticipated.

In many cases of spontaneous pneumothorax there is an open perforation in the visceral pleura, and the lung then will not re-expand, however much gas is removed. This perforation may heal and the lung may re-expand; or it may remain open, and in some cases several perforations are found post mortem. Or there may be a valvular perforation allowing air to leave the lung and enter the pleural cavity, but not to pass the other way. In such a case air is forced into the pleural cavity with every cough, and a very high intrapleural pressure will result. To relieve this an aspirating needle may be left in the pleural cavity, so that the gas can escape. The needle should be connected with a rubber tube leading to a bowl of water on the floor, thus forming a water valve and preventing air entering the chest through the tube.

In spontaneous pneumothorax of non-tuberculous origin, fluid in the pleural cavity does not occur, and complete recovery usually takes place. Osler mentions a case where the condition developed when the patient was going upstairs; no effusion was noted, and he did not react to tuberculin. In a large series of cases in which I have made an artificial pneumothorax I have found that effusion occurs in the majority of the tuberculous cases, but does not develop in the non-tuberculous ones. The formation of fluid, therefore, may be taken as pointing very strongly to the tuberculous nature of the condition, and this makes the prognosis much more grave. Indeed, in tuberculous cases where spontaneous pneumothorax develops and is followed by effusion, the patient nearly always dies of the disease sooner or later. The fluid becomes thick greenish tuberculous pus. Tubercle bacilli, which are absent at first, appear later in large numbers in the pus, and a secondary infection is liable to occur. If the pus is aspirated a sinus may follow, especially if, as is often necessary, the aspiration has to be performed repeatedly. Even if the original perforation heals in these cases the pleura becomes so thick that re-expansion of lung is impossible, and the pleural cavity is nothing more than a bag of tuberculous pus. So serious do I believe this condition to be that, if the patient recovers from the initial shock of the pneumothorax, I advise thoracoplasty early, as soon as the condition has become a chronic pneumothorax with tuberculous empyema. The longer the operation is delayed the worse the chance for the patient.

If the original perforation heals one may try to get re-expansion of

lung by aspirating the pus repeatedly and leaving as low an intrapleural pressure as possible. I have not found any great advantage in washing out the pleural cavity, but if this is done I think normal saline is as good as anything. It is not difficult to ascertain whether there is an open perforation in the visceral pleura; for, if there is one, a drug injected into the pleural cavity will be tasted by the patient; or, if coloured (for example, methylene blue) the dye will be seen in the sputum. Again, if lipiodol is injected into the trachea, it will find its way into the pleural cavity if there is a perforation of pleura, and this is a good method of localizing the position of the perforation.

The following case is an example of one where operation is advisable; indeed, I think in this instance it might have been done sooner: A man of thirty-three, who had had a cough and debility for some six months, developed a spontaneous pneumothorax in September, 1925. On November 3, 1,750 c.c. of clear fluid were removed from the right pleural cavity. It was sterile and no tubercle bacilli were found. On November 19 the fluid was turbid and 200 c.c. were removed, 15 c.c. of Gauvain's modifying fluid (guaiacol 2 g., creosote 2 g., iodoform 5 g., ether 10 g., sterile olive oil 100 c.c.) were injected, and two hours later the patient tasted this, thus showing that the perforation was still open. In January, 1926, 1,000 c.c. turbid fluid were removed, and in March 1,200 c.c. of greenish pus were aspirated. In April another 1,200 c c. of similar pus were aspirated. It now contained tubercle bacilli, the perforation was still patent, and as there was no sign of any re-expansion of lung an operation was advised. Thoracoplasty was performed in two stages, and a month later $4\frac{1}{2}$ inches of the right phrenic nerve were removed. By this means the pleural cavity was obliterated, and the patient made good progress.

The operation in such cases is not without its danger, especially in these cases where there is a tuberculous empyema, but I have seen several good results, and I believe it gives the patient a better chance than leaving him alone. One should not forget that if the lung in these cases is completely collapsed and cannot re-expand it is quite useless to the patient, so that it cannot be objected to the operation that one is permanently destroying the function of one lung, as may be objected to thoracoplasty in an ordinary case of tuberculosis. When once a sinus forms the case becomes much more serious, so that it is unwise to aspirate more often than necessary in a case of tuberculous empyema. When aspiration is done it is best to draw down the skin, so that if one punctures the sixth intercostal space the needle passes through skin that normally is over the fifth and after the aspiration will return to the fifth space. This I believe does help to prevent a sinus.

Lastly, there is the type of spontaneous pneumothorax which sometimes occurs in pulmonary tuberculosis and which proves beneficial.

In such a case it is usually advisable to convert it into an artificial pneumothorax and proceed with the treatment in the ordinary way. I would summarize my general conclusions thus:

1. Spontaneous pneumothorax due to a simple and non tuberculous origin usually heals quickly and is not complicated by the formation of effusion. If the lung does not re-expand after a few days some gas can be removed from the pleural cavity, and this usually leads to a satisfactory expansion. By the words simple origin it is meant to exclude such gross disease as carcinoma, rupture of abscess.

2. Spontaneous pneumothorax of tuberculous origin usually goes on to the formation of effusion. In some cases this clears up after one or more aspirations, but usually it leads to a chronic pyo-pneumothorax. In this case, if the lung cannot be re-expanded early, thoracoplasty probably gives the best results.

3. In some cases spontaneous pneumothorax is beneficial, and it is best to prevent the lung from re-expanding by keeping up an artificial pneumothorax.

THE RESEARCH WORK IN TUBERCULOSIS OF THE MEDICAL RESEARCH COUNCIL.

By A. SALUSBURY MacNALTY,

M.D. (OXON), M.R.C.P., D.P.H. (LOND.),

Secretary to the Tuberculosis Committee of the Medical Research Council.

Since its foundation in 1913 the Medical Research Council has taken a special interest in the promotion of research in tuberculosis. The work is directed by a group of committees, and is intimately linked up with the tuberculosis work of the Ministry of Health, the Secretary of the Committee being a Medical Officer of that Department. Through this co-ordination any proved and important advance in the treatment of tuberculosis can be speedily brought to the notice of those responsible for the administration of institutions and treatment of patients under the national tuberculosis scheme.

The Council's work in tuberculosis is not isolated from other branches of medical research. The members of the tuberculosis committees are in close touch with other committees of the Council, so that any work in fields of general scientific investigation which may have a direct or indirect bearing upon the problems of tuberculosis can be linked up and applied. As examples of such important co-ordination, the work of the Bacteriological Committee in relation to the bacteriology of tuberculosis; of the Committee on Human Nutrition with reference to dietary in tuberculosis; of the Statistical Committee con-

cerning statistical investigations in tuberculosis; of the Committee on the Biological Actions of Light concerning artificial heliotherapy in tuberculosis; and of the Industrial Fatigue Research Board in regard to occupational tuberculosis may be mentioned. The Council is, therefore, fully appreciative that tuberculosis is a complex problem and that its investigation must be conducted along many paths.

The actual work of research directed by the organization just described is done in two ways. There are first a limited number of investigators who devote their whole time to research in tuberculosis, either at the National Institute for Medical Research at Hampstead, or in a research department of a university. Secondly, there are various workers in university departments, sanatoria, and elsewhere who are following some special line of investigation approved by the Council, and receive in aid thereof a part-time grant. The machinery also provides for co-ordinated investigations in which the evidence of a number of workers is required—*e.g.*, the pathological and clinical inquiries into the value of Sanochrysin as a therapeutic agent.

It would be impossible in the space of this brief article even to enumerate the different researches done under the ægis of the Council. Appended will be found a list of their official reports on tuberculosis. But in addition to these there are numerous accounts of investigations published in the leading scientific and medical journals of this country, the expenses of which have been defrayed by a grant from the Council.

Lastly, there are many investigations recorded in the unpublished minutes of the Council's sub-committees which have proved or disproved some point in tuberculosis investigation—for instance, the late Dr. A. C. Inman's work on the complement fixation and precipitation tests, and inquiries made, and still being made, by the Tuberculin Committee into certain forms of tuberculin advocated for the treatment of tuberculosis.

In reviewing a decade of national research work in tuberculosis, whilst some of the labour has necessarily been spade work, or, whilst highly encouraging in its earlier stages, has proved on intensive inquiries to be less fruitful of permanent results, other work stands out of fundamental importance. In this connection may be mentioned the investigations into the epidemiology of phthisis in Great Britain and Ireland by the late Dr. Brownlee, which no serious student of the subject can afford to neglect; the statistical investigations (including the value of tuberculin treatment) into the after-histories of patients treated at King Edward VII. Sanatorium and Frimley Sanatorium; the monograph on tuberculosis of the larynx by Sir St Clair Thomson, which emphasizes the value of early treatment in this form of tuberculosis; and the investigation of the efficacy of artificial pneumothorax in the treatment of pulmonary tuberculosis, which has led to a much

more general use of the method in this country. The Tuberculin Committee, after several years' elaborate investigation, has devised a modification of the double intradermal test in cattle, which has been found simple and efficacious in practice by veterinary surgeons, and which has an important bearing upon the prevention of bovine tuberculosis in animals and man. Finally, Dr. Stanley Griffith's researches into different strains of tubercle bacilli from human and animal tuberculosis are most valuable additions to bacteriological knowledge.

Fresh lines of attack on tuberculosis are continually under the consideration of the Medical Research Council, and it is only by comprehensive and co-ordinated investigations, such as are here described, that the advancement of knowledge can be sustained and that ultimate success is likely to be achieved.

SPECIAL REPORTS ON TUBERCULOSIS ISSUED BY THE MEDICAL RESEARCH COUNCIL.[1]

No. 1. First Report of the Special Investigation Committee upon the Incidence of Phthisis in Relation to Occupations: The Boot and Shoe Trade. Price 3d.; post free, 3½d.

No. 18. An Investigation into the Epidemiology of Phthisis Pulmonalis in Great Britain and Ireland. Parts I. and II. By John Brownlee. Price 1s. 3d., post free, 1s. 4½d.

No. 22. An Inquiry into the Prevalence and Ætiology of Tuberculosis among Industrial Workers, with Special Reference to Female Munition Workers. By Major Greenwood and A. E. Tebb. Price 1s. 6d.; post free, 1s. 7d.

No. 33. Pulmonary Tuberculosis: Mortality after Sanatorium Treatment. By Noel D. Bardswell and J. H. R. Thompson. Price 2s.; post free, 2s. 2d.

No. 46. An Investigation into the Epidemiology of Phthisis in Great Britain and Ireland. Part III. By John Brownlee. Price 2s. 6d.; post free, 2s. 7½d.

No. 67. Report on Artificial Pneumothorax. By L. S. T. Burrell and A. S. MacNalty. Price 2s. 6d.; post free, 2s. 8d.

No. 76. Tuberculosis in Insured Persons accepted for Treatment by the City of Bradford Health Committee. By H. Vallow. Price 6d.; post free, 7d.

No. 83. Tuberculosis of the Larynx. By Sir St. Clair Thomson. Price 2s. 6d.; post free, 2s. 8d.

No. 85. An Inquiry into the After-Histories of Patients treated at the Brompton Hospital Sanatorium at Frimley during the Years 1905-14. By Sir P. H. S. Hartley, R. C. Wingfield, and J. H. R. Thompson. Price 1s. 6d.; post free, 1s. 7d.

No. 94. Tuberculin Tests in Cattle, with Special Reference to the Intradermal Test. By the Tuberculin Committee. Price 3s; post free, 3s. 3d.

[1] The publications relating to the work of the Medical Research Council can be purchased through any bookseller, or direct from H.M. Stationery Office at the following addresses: Adastral House, Kingsway, London, W.C. 2, and 28, Abingdon Street, London, S.W. 1; York Street, Manchester; 1, St. Andrew's Crescent, Cardiff; 120, George Street, Edinburgh.

TERRACE SANATORIA FOR TUBERCULOUS CASES.

By C. O. GJERLOV-KNUDSEN,

M.A.A. Architect of Copenhagen, Denmark.

I GLADLY comply with the desire of the Editor that I should present a concise statement regarding my plans for terrace buildings, in so far as they seem suitable for sanatoria and other institutions dealing with tuberculous cases.

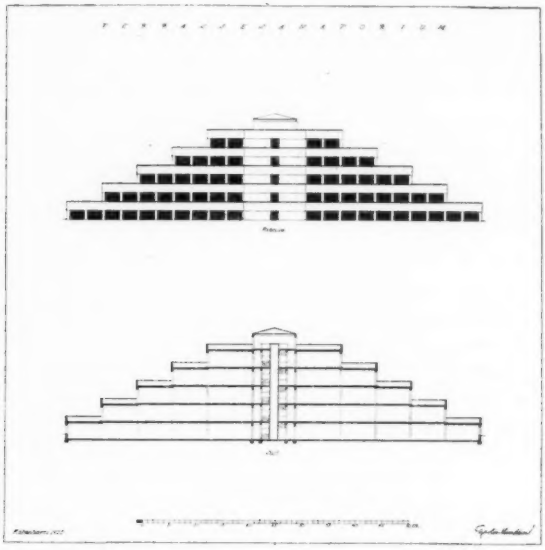
The GK-terrace buildings are buildings in storeys planned and constructed in such a manner that they are on a level with and in direct connection with the storeys which have access to large open-air spaces. The plan of the main type of these buildings is in the form of a cross with four wings, and it is formed so that the storeys from the four gables of the building are drawn back, gradually increasing towards the centre of the building. In this manner terraces are formed for each storey, and these terraces vary in size for the different types from about 10 to 70 metres. The terrace buildings, instead of having four wings, may have three wings or be angular or rectangular.

The terrace buildings are designed and arranged to serve as sanatoria as well as for ordinary houses and other institutions.

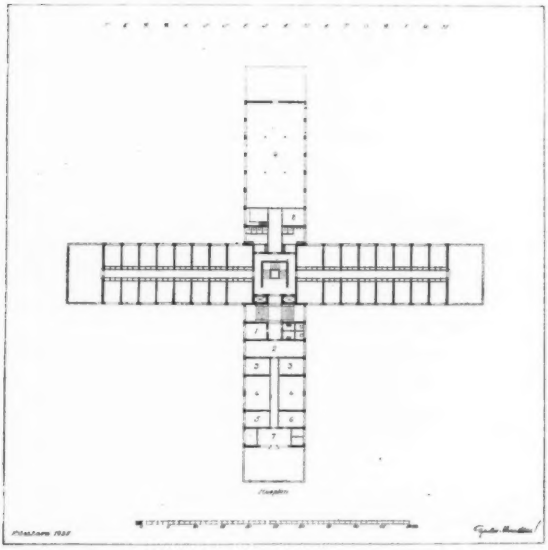
One of the main requirements of a sanatorium for the treatment of tuberculosis is that the patients shall live as far as possible in the open air, and so have free exposure to the direct healing action of moving air and sunlight. In most sanatoria open-air shelters are arranged in connection with the gardens, or on the roof of the institution, or in a loggia. Arrangements of this kind do not form a satisfactory and natural part of ordinary vertical buildings, or allow for hygienic arrangements and effective working. Where the open-air shelters are on the ground level or on the roof, patients who cannot easily be moved require the use of a lift.

In the case of the GK-terrace sanatorium, on each storey in each wing of the building there are open, easily accessible air spaces, to which patients confined to bed may be readily transported, as the distance from the sick room to the terrace is short, and all movement is on the same level, so that special devices such as stairs or lifts can be dispensed with. The simplification of the working of a sanatorium constructed on the terrace system manifestly offers economic advantages.

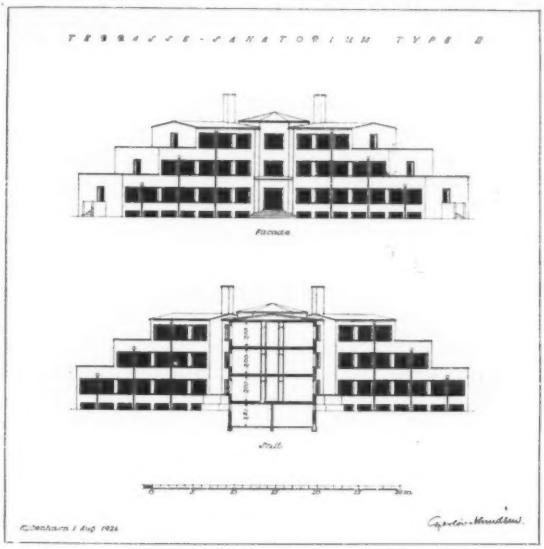
Terrace buildings not only offer advantages for use as sanatoria, but



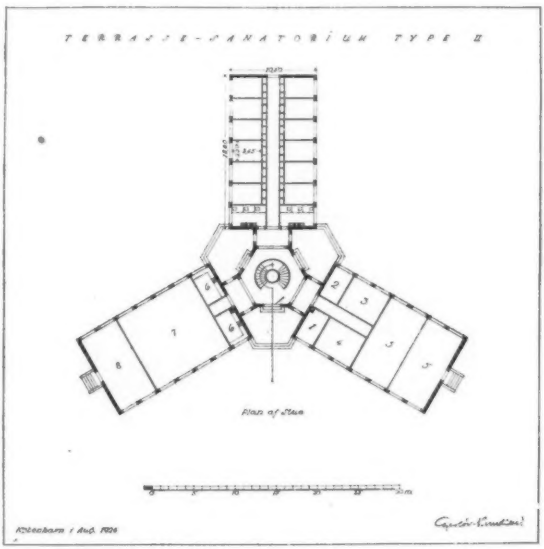
GK-TERRACE SANATORIUM, TYPE I.
Façade and Section, 1 : 1,200.



GK-TERRACE SANATORIUM, TYPE I.
Ground Floor Plan, 1 : 1,200 ; 16 double and 98 single rooms. Area of each terrace, 70 metres.



GK-TERRACE SANATORIUM, TYPE II.
Façade and Section, 1 : 800.



GK-TERRACE SANATORIUM, TYPE II.
Ground Floor Plan, 1 : 800 ; 6 double and 44 single rooms. Area of each terrace, 50 metres.

are excellent for hospitals for cripples, old people, and for patients who can only be moved with difficulty. Ready access to open-air spaces is provided without the need for elaborate plants, stairs, or lifts.

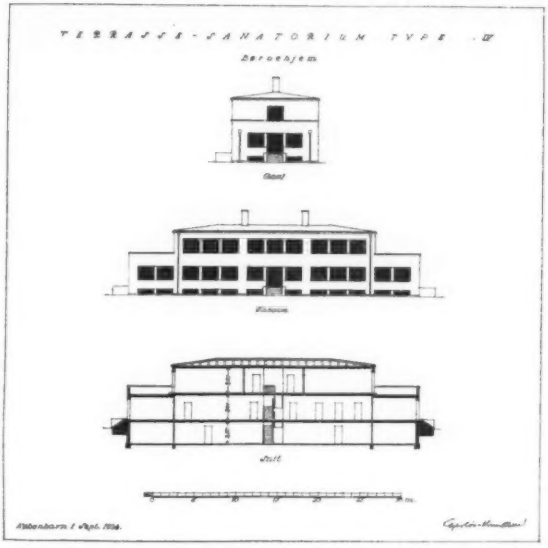
The storeys of the GK-terrace buildings are arranged with single and double rooms, with lavatories, tea kitchens, and rooms for the nurses. On the ground floor there may be, besides rooms for patients, dining halls, various living rooms, consultation rooms, and possibly laboratory and operating room, as well as offices. In the basement there may be bathrooms and rooms for massage and the like, gymnasium, as well as kitchen and store rooms. The four- and three-winged sanatoria buildings have a centrally situated staircase lighted from overhead or from the side. All the rooms have access to corridors which are connected with the terraces.

It should also be noted that GK-terrace buildings, arranged for ordinary habitation, provide a dwelling with the chief health values of a sanatorium. The storey flat gets its open-air space in connection with the flat, and the flats on the ground floor can have gardens. The main type has four wings, and the building plan for these buildings are arranged in groups of four, six, or eight terrace buildings. Between the buildings there will consequently be open squares for the cultivation of flowers and plants, which squares in connection with the receding form of building give an open building system. The dark corridors met with in the customary buildings are replaced by open squares, and all the windows overlook these squares. On the terraces with their plants, and in the gardens, children can play in the fresh air.

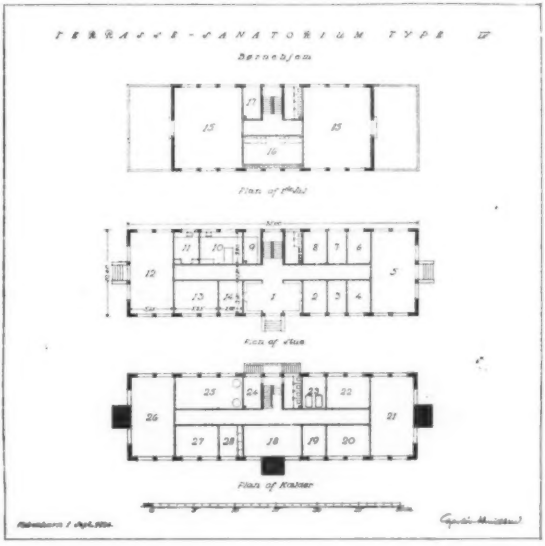
The GK-terrace building combines the advantages of the single house building system and the block building system. The access to open-air spaces in the single house and the open building system are combined with the snugness of the built-in flat, with the increased possibilities of the storey house being provided with a number of technical installations, such as central heating. They possess the advantages of the town building, which allows ready access to shops and offices and other social centres. They are also of economical importance in connection with the purchase of building sites, the making of roads, and the construction of drains, etc.

In Copenhagen the proportional prices per metre of flat area of the actual building amount for the single house, the terrace house, and the five-storey block to about 140, 125, and 120 Kroner respectively, according to calculations made in February, 1927.

The development of towns and the extension and rebuilding of great cities, together with the establishment of new houses necessitated by emigration from the inner unhealthy centres to the planet towns in the neighbourhood of the great cities, is at present chiefly carried out on the basis of the single house building system. This building



GK-TERRACE SANATORIUM, TYPE IV. (CHILDREN'S HOME).
Façade and Section, 1 : 800.



GK-TERRACE SANATORIUM, TYPE IV. (CHILDREN'S HOME).
Plans, 1 : 800; 40 beds. Area of each terrace, 40 metres.

tendency to spread out has the effect of destroying the areas of natural beauty in the neighbourhood of the towns, and especially is this the case in the neighbourhood of great cities. In contradistinction to this method, the extension of towns into new districts and the building up of planet towns by means of GK-terrace buildings, and the construction of plans in accordance therewith, will have the effect, owing to the concentration of this form of town, that the free areas of natural beauty between the mother town and the planet towns, and between the planet towns themselves, will be preserved for recreation and gardening and the general well-being of the citizens.

ASSOCIATIONS AND INSTITUTIONS.

THE TRUDEAU FOUNDATION.

Dr. Edward Trudeau will rank for all time among the pioneers of the Tuberculosis Movement. His memory is suitably maintained in the Trudeau School of Tuberculosis at Saranac Lake in the State of New York, and by the Edward L. Trudeau Foundation for Research and Teaching in Tuberculosis. Dr. Edward R. Baldwin, the present Director of the Trust, has favoured us with the following particulars which will be of interest to medical advisers and students of the Tuberculosis Problem on both sides of the Atlantic.

The Edward L. Trudeau Foundation for Research and Teaching in Tuberculosis was established in 1916 for the following stated purposes: (1) To maintain laboratories and carry on research into the causes and treatment of tuberculosis. (2) To maintain regular courses of instruction for physicians and others in the most advanced knowledge of tuberculosis, under the name of the Trudeau School of Tuberculosis. (3) To offer young physicians and others the opportunity for research while undergoing treatment for tuberculosis, through the establishment of Fellowships. The memorial fund established by the friends of the late Dr. Trudeau has gradually been augmented until it is now a capital sum of $450,000,000. The income of this fund combined with annual gifts of interested individuals has rendered possible the continuation of the Trudeau School of Tuberculosis (previously described in The British Journal of Tuberculosis, 1916, Vol. X., p. 182). Thirteen sessions of six weeks' intensive instruction have been held, and 292 physicians have received certificates of attendance, many of whom were former tuberculous patients. The classes have been restricted to twenty-five at each session. Fellowships for laboratory and clinical study have provided support for seventy-three medical students and physicians while completing the restoration of their health. In addition, twenty summer students, undergraduates of medical schools, have availed themselves of the opportunities found in the sanatoria and laboratories. The teaching offered now includes regular courses in the bacteriology and pathology of tuberculosis, which are given by the full-time pathologist and bacteriologist who direct the Saranac Laboratory and the new Trudeau Research and Clinical Laboratory opened in 1923. The results of the researches and the medical statistics are published annually in the "Studies of the Trudeau Foundation." Practically all the chiefs, assistants, and technical staffs of the Foundation are tuberculous or ex-patients. It is believed to be the largest number of such patients employed in any tuberculosis institution, and the success of the enterprise in fostering the study and the spread of knowledge of this disease is wholly dependent on their efforts. How much the diagnosis and treatment of tuberculosis has been advanced in America by the Trudeau Foundation during the past decade can best be measured by the widespread interest created and the steadily improving standards of practice.

NOTICES OF BOOKS.

THE NORMAL CHEST.

A THOROUGH understanding of the normal chest should precede all considerations of disease involving intrathoracic structures. An elaborate guide to such a study is now available in the handsome and effectively illustrated volume provided by Professor Myers and his colleagues of the University of Minnesota.[1] The work is the outcome of a course of lectures and demonstrations on the normal chest carried through in 1921, and was stimulated by papers and discussions on education in tuberculosis presented before the Seventeenth Annual Meeting of the American National Tuberculosis Association in New York City. We earnestly commend the volume which lies before us to the notice of all medical advisers interested in affections of the chest, and particularly to tuberculosis officers and medical superintendents of sanatoria; it is a work which no one of them can afford to neglect. The main facts so far as ascertained in regard to one part of the human machine are here gathered together and presented in systematic array, admirably illustrated by diagrams, drawings, charts, and roentgenograms. There are a dozen chapters dealing respectively with Practical Considerations of the Anatomy of the Chest, the Surface of the Chest, Practical Considerations of the Physiology of the Chest, Physical Examination of the Normal Chest, the Examination of the Normal Heart and Great Vessels, the X-ray Examination of the Normal Chest, the Body Weight and Chest Measurements, including the Vital Capacity of the Lungs of the Normal Adult, the Importance of Systematic Examinations, the Examination of the Normal Chest in Infancy and Childhood, the Innervation of the Chest, the Developmental Anatomy of the Chest and the Thoracic Organs, and the Acoustics of Percussion and Auscultation. Such a brief enumeration of titles will be sufficient to indicate the comprehensiveness and thoroughness of this unique composite volume. At the end of each chapter is a serviceable select bibliography. A word of praise must be allowed to printers and publishers for the general get-up of the work and for the admirable illustrations. Dean E. P. Lyon in his commendatory introduction says of this worthy enterprise: "It is set forth as forerunner of a day, still no doubt distant, when the facts of biology can be resolved into mathematical principles, and when medical diagnosis and treatment can proceed with the assurance of exact knowledge

[1] "The Normal Chest of the Adult and the Child, including Applied Anatomy, Applied Physiology, X-Ray and Physical Findings." By J. A. Myers, Associate Professor of Preventive Medicine, Medical and Graduate Schools, University of Minnesota, in collaboration with S. Marx White, Professor of Medicine; R. E. Scammon, Professor of Anatomy; A. T. Rasmussen, Professor of Neurology; C. A. Stewart, Assistant Professor of Pediatrics; and George E. Fahr, Associate Professor of Medicine, all of the University of Minnesota. With an Introduction by Elias P. Lyon, Head of the Department of Physiology, and Dean of the School of Medicine, University of Minnesota. Pp. xv+419, with 141 figures. London: Baillière, Tindall and Cox. 1927. Price 22s. 6d.

leading to predictable consequences. . . . We believe that the human body operates, in health and disease, in accord with immutable laws. When these laws are known, when the factors concerned can be measured, then medicine will be a science." The Medical School of the University of Minnesota has rendered medical science a real service by the publication of this very complete exposition of our present-day knowledge regarding the normal chest.

T. N. KELYNACK, M.D., M.R.C.P.

TUBERCULOUS MIDDLE-EAR DISEASE.

Professor Cemach, of Vienna, has written a monograph on middle-ear tuberculosis which will be of interest to aural surgeons and to serious students of tuberculosis.[1] The work is divided up and set forth in the usual order, and, although no index is provided, it is preceded by a careful contents list, and it concludes with a useful bibliography. Tuberculosis of the middle ear is, of course, no separate entity, but merely a local manifestation of a general infection. Our knowledge of the condition is unsatisfactory and elementary, and this is chiefly due to the fact that no one investigator has had any extensive experience of it. The author claims, as his justification for this thesis, the considerable experience he had during the Great War in the tuberculosis department of various hospitals, when some 3,000 soldiers passed through his hands. These patients were suspected or definitely proved to be tuberculous in various stages. As is well known, cases of pulmonary tuberculosis are conveniently arranged in three groups in accordance with the Turban-Gerhardt classification. (This is also the classification employed at Midhurst.) Group I. includes early cases; Group II., fairly advanced cases; and Group III., well advanced cases. In Group I., in 716 cases, the author found tuberculous middle-ear disease in seven ears—*i.e.*, about 1 per cent. In Group II., in 1,152 cases, twenty-five ears—*i.e.*, about 2·1 per cent. In Group III., in 474 cases, twenty-four ears—*i.e.*, about 25 per cent. These patients were all adults. To determine the incidence according to age Cemach took another series of 150 cases. which showed that the disease is most commonly met with in the third decade of life (this, of course, because pulmonary tuberculosis is more common then than in any other decennium). It is not, as is sometimes thought, particularly a children's disease. The route by which the ear is infected from the primary focus may be by the blood or lymph channels. Infection by direct conveyance of bacilli via the Eustachian tube must be very rare. The description of the clinical appearances is not very definite. It includes nodulation and gradual destruction of the membrana, caries, tenderness, caseation of mastoid cells, fistula, mastoid, painless and progressive destruction of the membrane, and granulations. Confirmatory evidence is found by the discovery of pulmonary disease, tuberculosis of the peri-auricular glands, inoculation reaction, histological examination, and animal research. Prognosis, as regards life, the author con-

[1] "Das Problem der Mittelohrtuberkulose," von Dr. A. I. Cemach, Fachart für Hals-, Nasen- und Ohrenkrankheiten in Wien. Pp. 224, mit 5 Abbildungen im Text. Berlin: Urban und Schwarzenberg, Friedrichstrasse 1056. 1926. Price M. 9.

siders favourable. It depends, primarily, on the condition of general resistance. The consideration of the whole subject is well arranged, and the detailed discussions are well summarized at the end of each chapter.

ST CLAIR THOMSON, M.D., F.R.C.P., F.R.C.S.
ALEXANDER TWEEDIE, F.R.C.S.

TUBERCULOSIS WORK IN GERMANY.

Dr. K. H. Blümel has edited a comprehensive two-volume work on tuberculosis.[1] In the preface to this work the editor recalls with pride that Germany has furnished weapons to the whole world for the campaign against tuberculosis in the work of Brehmer, Koch, Röntgen, Flügge, and many others. It is important, therefore, for those interested in tuberculosis to have accurate information concerning the organization and progress of the work in Germany. To this end Dr. Blümel, of Halle, has enlisted a number of representative authorities, whose contributions on the subject constitute a veritable encyclopædia of the tuberculosis campaign. The plan of the work is as follows: The first volume opens with an historical sketch of the beginnings of anti-tuberculosis work both in Germany and abroad, followed by an account of later developments; the complicated German legal administration embracing both general and local legislation is set forth in detail. It is noteworthy that, as in this country, the notification of tuberculosis is still found to be in need of improvement. Then follows a valuable section on statistics. The curves for the years 1914 to 1920 show the characteristic influence of war conditions in favouring both the incidence and mortality of tuberculosis. The fourth section treats of the part played by central and local government in tuberculosis provision, and deals also with the arrangements for this purpose made under the National Insurance Scheme; next comes an account of the administrative control exercised over tuberculosis work, in which, *inter alia*, due stress is laid upon the co-operation of school medical work in anti-tuberculosis measures. In the sixth section the articles are on clinical subjects, and appeal chiefly to the practising physician. Those on juvenile tuberculosis and the pathological-anatomical foundation for the diagnosis of hilus-gland tuberculosis are of special interest. Timely recognition of tuberculosis in the family and community is stressed. The second volume treats of prevention, therapeutic measures (including dissertations on the efficacy of artificial pneumothorax, together with an excellent description of sanatoria, hospitals, and industrial colonies), the progress and value of anti-tuberculosis work, propaganda, and post-graduate study. In a concluding section accounts are given of the tuberculosis campaign in various European countries and in the United States of America. The

[1] "Handbuch der Tuberkulose—Fürsorge: Eine Darstellung der Deutschen Verhältnisse nebst einem Anhangüber die Einrichtungen im Auslande" [Manual of Provision for Tuberculosis. An Account of German conditions, with an Appendix concerning the Arrangements in Foreign Countries.] Edited by Dr. Karl Heinz Blümel, Facharzt für Atmungswege, Chefarzt und Leiter der Tuberkulose-Fürsorgestelle in Halle. Two volumes: Vol. I., pp. 457; Vol. II., pp. 533. Illustrated. Munich: J. F. Lehmann. 1926. Price: Vol. I., 27 marks; Vol. II., 30 marks.

article treating of the work in England and Wales is written by Dr. Eva Morton. In a work like this, which is made up of a number of separate contributions, it is inevitable that a certain amount of overlapping and repetition must occur. On the whole the editor has marshalled his facts in good order, and any practitioner desirous of studying tuberculosis work in Germany, by reading this book beforehand, will make his visit much more profitable.

A. S. M.

BRONCHIECTASIS IN CHILDHOOD.

Dr. Weise has written a useful book on bronchiectasis in children, a condition which was regarded until recently as a medical rarity.[1] In this country bronchiolectasis, as an acute condition following juvenile infectious diseases, has been described by Sharkey, Carr, and others. But the main incidence of the disease has usually been considered to fall between the twentieth and fortieth year. Aided by improved methods of modern diagnosis, the opinion is now expressed not only that bronchiectasis is more frequently recognized, but also that it occurs more often, and especially in children. Dr. O. Weise's able study supports these conclusions. In the practice of the Kaiser Wilhelm-Kinderheilstätte at Landeshut in Schleswig he has collected 114 cases of bronchiectasis ranging from four to fifteen years of age. The infectious diseases, especially whooping-cough and measles, broncho-pneunomia and congenital syphilis, are the chief responsible etiological factors. The sections on differential diagnosis and the association of pulmonary tuberculosis with bronchiectasis demonstrate, firstly, that the condition may supervene on juvenile tuberculosis or alternatively may precede it—*e.g.*, Leber has found that 21 per cent. of his tuberculous cases had some bronchiectasis; secondly, that bronchiectasis in children is often diagnosed erroneously as juvenile tuberculosis. Here X-ray examination and lipiodol enable the bronchiectatic condition to be recognized. In this connection attention should be directed to the excellent and well-produced series of skiagrams illustrating this monograph. The tuberculosis officer dealing with pulmonary symptoms in children should bear in mind the possibility of juvenile bronchiectasis, and Dr. Weise's book gives not only an excellent account of the disease and its diagnosis, but is helpful as regards prophylaxis and treatment. The prognosis of the condition appears to be less grave in children than in the adult form.

A. S. M.

PULMONARY TUBERCULOSIS.

Dr. Muthu's work on pulmonary tuberculosis, when published first in 1922, was approved as an original, independent, comprehensive study of the most prevalent form of human tuberculosis by one who for many years has not only devoted himself to the care of patients, but has given constant thought to the medico-sociological aspects of the tuberculosis problem. We gladly welcome a second and enlarged edition of Dr. Muthu's monograph, based as it is on records of twenty-

[1] "Die Bronchiektasien im Kindesalter" [Bronchiectasis in Childhood], by Dr. O. Weise. Pp. 116. Berlin: Julius Springer. 1927.

seven years of patient observation and faithful work in open-air sanatoria. The author is an enthusiastic advocate of Nature's methods, and in the preface to his new edition urges that, "unless the campaign against tuberculosis teaches the civilized man to change his present material, strenuous, and unhealthy aims and pursuits, and to follow a more sane, simple, and natural living, he will have gained no advantage, even if he had achieved the conquest of consumption, as, by escaping from tuberculosis, he will only fall a prey to a brood of other evils, such as cardiac, renal, and malignant diseases, that lurk within civilized beings." Dr. Muthu claims that "it is becoming more and more necessary for medicine to understand the signs of the times, to welcome light from every quarter without bias or prejudice, and to lead mankind in the pursuit of preservation of health and the prevention of disease rather than spend its energy in the treatment of symptoms when disease is firmly established in the human body." The second part of the volume on the etiology and treatment of pulmonary tuberculosis is practically a reprint of the previous edition. This is preceded by a section extending over 121 pages, providing a general survey of present-day problems of tuberculosis. In regard to sanatorium treatment, Dr. Muthu gives it as his opinion that, "given a reasonably early case and well-trained and experienced physician, the sanatorium treatment holds out the best hope of success in the treatment of pulmonary tuberculosis." Descriptions are given of various means for the external compression of the lung in pulmonary tuberculosis by mechanical means. The pages devoted to a consideration of the environmental factors of tuberculosis are particularly suggestive. Dr. Muthu has recently studied the tuberculosis problem in India, and includes a short account of his observations and conclusions in his book. We would urge all tuberculosis officers and others dealing at first hand with the problem of tuberculosis to read Dr. Muthu's interesting and suggestive volume.[1]

Drs. F. E. Tylecote and G. Fletcher are to be congratulated on their simple, explicit, practical handbook on diseases of the lungs, which, in compact form and without tedious references, presents a clear picture of each of the chief morbid pulmonary lesions, and furnishes reliable guidance in their recognition and management.[2] There is a particularly lucid and comprehensive account of the chief varieties of pulmonary tuberculosis. The classification approved by the Ministry of Health is indicated, but with no word either of approval or disapproval. The section on the too-frequently neglected question of prognosis is excellent. We welcome such a common-sense statement as this: "Unless there are strong reasons to the contrary, it is usually wise to advise him [the patient] to return to his old employment, for it is only in a few fortunate instances that 'light outdoor occupation' is available without serious economic sacrifice." The book contains a number of useful prescrip-

[1] "Pulmonary Tuberculosis: Its Etiology and Treatment." A record of twenty-seven years' observation and work in open-air sanatoria. By David C. Muthu, M.D., M.R.C.S., L.R.C.P., Medical Superintendent, Mendip Hills Sanatorium, Wells, Somerset. Second edition, enlarged. Pp. cxxi+381, with thirty-three original plates. London: Baillière, Tindall and Cox. 1927. Price 12s. 6d. net.

[2] "Diagnosis and Treatment in Diseases of the Lungs," by Frank E. Tylecote, M.D., D.P.H., F.R.C.P., Hon. Physician to the Manchester Royal Infirmary; and George Fletcher, M.A., M.D., M.R.C.P., D.P.H., Assistant Tuberculosis Officer Lancashire County Council. Pp. vii+270. London: Humphrey Milford, Oxford University Press, Amen House, Warwick Square, E.C. 4. 1927. Price 7s. 6d.

tions. The authors claim that their work is intended primarily for the senior student and the young practitioner, but tuberculosis officers and all medical advisers dealing with chest cases will find much that will be of service in the pages of this effective member of the Oxford Medical Publications.

MANUALS FOR MEDICAL ADVISERS AND WORKS OF REFERENCE.

Tuberculosis officers, medical superintendents of sanatoria, and other specialists in the diagnosis and treatment of tuberculosis are in danger of being too restricted in their outlook. They should make a point of always having on hand a systematic treatise on physiology and also one on general medicine. As an example of the former we would commend the admirable new "Synopsis of Physiology," written by Mr. A. Rendle Short and Dr. C. I. Ham of Bristol. It is a new number of the popular and serviceable series of synopsis manuals published by John Wright and Sons Ltd. The work provides in systematically arranged form a concise, lucid, up-to-date summary of human physiology, which will not only be invaluable to the student, but enables the busy practitioner to keep abreast with modern physiology and its application to present-day medicine. The authors of this most acceptable manual are to be congratulated on having produced a work which can be commended to all who desire to extend, revise, and maintain their knowledge regarding the fundamentals of physiology, on which alone can a satisfactory system of reliable medicine be founded.[1]

All who have charge of patients, whether in sanatoria, attending tuberculosis dispensaries, or in the course of general practice, should be acquainted with modern views on the diagnosis and treatment of skin diseases. An admirable guide to the study of cutaneous disorders has recently been written by Dr. Cranston Low, based on his lectures delivered to students in Edinburgh.[2] The work is an ideal one for senior students and young practitioners, for it describes clearly and in an orderly and practical manner the chief skin diseases likely to be met with in this country, and indicates dogmatically how they are to be dealt with. The value of the manual is considerably enhanced by the series of splendid photographs of actual cases. A special chapter is devoted to tuberculosis of the skin. The illustrations of the ravages of lupus vulgaris are particularly striking. With regard to treatment, the opinion is expressed that the most satisfactory method of treatment is by the use of ultra-violet rays: "Daily radiation of the whole body, even in extensive and long-standing cases, holds out the best hope of cure." There are also sections on scrofuloderma, tuber-

[1] "A Synopsis of Physiology," by A. Rendle Short, M.D., B.S., B.Sc., F.R.C.S., Surgeon to the Bristol Royal Infirmary and Lecturer in Physiology to the University of Bristol; and C. I. Ham, M.B., B.Ch., M.R.C.S., L.R.C.P., Demonstrator in Physiology to the University of Bristol. Pp. v+258, with twenty-seven figures, some in colours. Bristol: John Wright and Sons Ltd. 1927. Price 10s. 6d.

[2] "The Common Diseases of the Skin: A Handbook for Students and Medical Practitioners." By Cranston Low, M.D., F.R.C.P., Lecturer on Diseases of the Skin, University of Edinburgh, and Physician to the Skin Department, Royal Infirmary, Edinburgh. Pp. xii+223, with 68 illustrations—49 full-page plates (8 of which are in colour), and 19 figures in the text. Edinburgh: Oliver and Boyd, Tweedale Court. 1927. Price 14s.

culosis cutis verrucosa, tuberculous ulcers, tuberculides, and Bazin's disease. Dr. Low's work provides an up-to-date, reliable, and thoroughly serviceable handbook, which should be in the hands of every practising doctor.

Dr. Dan McKenzie, President of the 1926-27 Section of Otology of the Royal Society of Medicine, has prepared a second edition of his handsomely presented, monumental, practical treatise on diseases of the throat, nose, and ear.[1] The volume is an impressive one, for it is produced in first-class form, printed on art paper, and is generously illustrated. It is essentially a work for those who desire definite guidance in the choice and conduct of diagnostic and therapeutic procedures. Considerable attention has been devoted to operative methods. The frontispiece is of historic interest, for it is a reproduction of one of the drawings executed for Sir Morell Mackenzie by Dr. Lennox Browne, and recently presented by Mr. E. Mayer, of the well-known firm of Mayer and Phelps, together with manuscripts and instruments which belonged to Mackenzie, to the Royal Society of Medicine. The first edition of this notable work appeared in 1920, and the new edition has been thoroughly revised and enlarged by nearly one-third. The volume will be of interest and value not only to specialists, but to all medical advisers who desire to learn how effectively and extensively oto-laryngological work is developing. We commend Dr. Mackenzie's treatise to the consideration of tuberculosis officers and medical superintendents of sanatoria. There are excellent sections on tuberculosis of pharynx and tonsils, larynx, and ear. In connection with the section on lupus of the larynx reference is made to the use of radium. There are also descriptions of lupus of the nose and pharynx. The lengthy chapter on the examination and diseases of the nasal accessory sinuses is particularly serviceable. An admirable account is provided of the examination of the ear. A word of special praise must be reserved for the illustrations, which are numerous and highly instructive. There is a good index.

The late Dr. W. G. Porter long ago wrote a much appreciated manual for senior students and young practitioners on diseases of the nose, throat, and ear. After passing through several editions, and appearing in a modernized form in 1924, this justly popular work is issued in an up-to-date edition, which places it in the front ranks of books on the speciality with which it deals.[2] Dr. Logan Turner, in association with specialist Edinburgh colleagues, has produced a handsome volume, which is certainly one of the most helpful and practical guides to the diagnosis and treatment of diseases of the throat, nose, and ear. The manual is almost unique in having an anatomical introduction to each section. Another praiseworthy feature is the detailed

[1] "Diseases of the Throat, Nose, and Ear," by Dan McKenzie, M.D., F.R.C.S.E., Surgeon Central London Throat and Ear Hospital, Oto-Laryngologist to the French Hospital, etc. Pp. vii + 677, with 3 coloured plates and 254 figures in the text. London: William Heinemann (Medical Books), Ltd., 20, Bedford Street, W.C. 2. 1927. Price 45s.

[2] "Diseases of the Nose, Throat, and Ear for Practitioners and Students," edited by A. Logan Turner, M.D., LL.D., F.R.C.S.E., Consulting Surgeon Ear and Throat Department Royal Infirmary, Edinburgh; with the collaboration of J. S. Fraser, M.B., F.R.C.S.E.; W. T. Gardiner, M.C., M.B., F.R.C.S.E.; J. D. Lithgow, M.B., F.R.C.S.E.; and Douglas Guthrie, M.D., F.R.C.S.E. Second edition, revised and enlarged. Pp. xxiv + 440, with 234 illustrations in the text and 12 plates, of which 8 are in colour. Bristol: John Wright and Sons Ltd. 1927. Price 20s.

account of minor and major operations, some of which are graphically illustrated. Dr. G. Ewart Martin supplies an admirable section on Peroral Endoscopy. The Appendix contains a series of formulæ, which the practitioner will appreciate. Special praise must be given to the plates and other illustrations. The descriptions of tuberculous lesions are excellent. It is advised that tracheoscopy and bronchoscopy should be carried out in cases which show all the physical signs of tuberculosis without the tubercle bacillus being detected, particularly where the apices are not affected, as in these cases foreign bodies are sometimes discovered. Three distinct types of tuberculosis of the larynx are described: (1) Chronic tuberculosis, or phthisis laryngea; (2) acute miliary tuberculosis; and (3) lupus. With regard to the latter, the opinion is expressed that the disease runs a very slow course, but undoubtedly cases of cure do occur, although occasionally the condition is followed by tuberculosis of the larynx. No reference is made to the employment of radium in these cases. There is an illustrated section on tuberculosis of the ear. All who have participated in the production of this satisfying volume are to be congratulated.

A number of instructive works, suitable for placing in the hands of tuberculous patients and those who care for them, have reached us from America. Among these the volume written by Dr. John Potts of Fort Worth, Texas, merits special praise. Essential facts regarding the nature of tuberculosis, its recognition, course, management, and the maintenance of health when arrest has been secured, are all set out in simple layman's language. The advice is sound and practical, and a spirit of optimism runs through all. Such a work as this makes hopeful, helpful co-operation between doctor, relatives, and patient possible. It is just the book which a doctor can safely recommend for the perusal of a wise consumptive patient.[1] It is to be feared that in some private and public sanatoria the duty of educating patients in the principles of hygiene and self-care, and particularly in the conduct of home management of sanatorium methods, is somewhat neglected. Dr. Potts's suggestive manual will be of service to both doctor and patient.

The majority of tuberculous subjects are young adults in a stage of development when sexual activity should naturally be at its maximum. For these, and indeed for all properly constituted men and women, sex hygiene is a matter of the first importance; reliable and helpful knowledge is essential if psychological and physical ills are to be avoided. We are therefore glad to welcome an English translation of the handbook of Drs. Sneidern and Sundquist on sex hygiene, which, while intended primarily for American parents and teachers, may be commended to the consideration of doctors, nurses, and all others in this country who desire a reliable, lucidly expressed, non-technical exposition regarding the anatomy, physiology, and hygiene of the male and female reproductive organs.[2] There are chapters on

[1] "Getting Well and Staying Well: A Book for Tuberculous Patients, Public Health Nurses, and Doctors," by John Potts, M.D.; with an Introduction by J. B. McKnight, M.D., Superintendent and Medical Director Texas State Tuberculosis Sanatorium. Pp. 223. London: Henry Kimpton, 263, High Holborn, W.C. 1927. Price 8s. 6d.

[2] "Sex Hygiene: The Anatomy, Physiology, and Hygiene of the Sex Organs," by Dr. Julia Kinberg Von Sneidern and Dr. Alma Sundquist. Translated by Mary E. Collett, Ph.D. Pp. 114, with 28 figures. London: George Allen and Unwin, Ltd., Ruskin House, 40, Museum Street, W.C. 1. 1927. Price 7s. 6d.

Fertilization and Embryonic Development, Pregnancy, The Hormones of the Sex Glands, Venereal Diseases, Sexual Abnormalities, Race Hygiene, and Sexual Education. The illustrations add to the practical value of this serviceable outline of human reproduction.

Drs. G. B. Webb and C. T. Ryder have provided tuberculous patients with a simple, readily understood, practical guide to recovery.[1] It has been written primarily for cases undergoing treatment in the United States, but it is worthy of being known and used by medical advisers and patients in this country. The manual is just the directory which a doctor can place in the hands of a patient. In the management of a consumptive co-operation between doctor and patient is essential to success. The work is presented in a bright, hopeful, informing fashion, and the advice given is excellent. A series of chart sheets provide for the recording of the chief data in the progress of the patient.

Lieutenant J. P. Muller has elaborated a system in which he advocates systematic exercises, exposure of the naked body to fresh air and sunlight, and regular aids to internal and external cleanliness.[2] The principles and practice of "My System" have been expounded in a series of attractive and effectively illustrated handbooks. The latest deals specially with means for carrying out air and sun baths, and many of the ideas presented and the methods advocated are worthy the consideration of medical advisers interested in practical prophylactic and therapeutic measures for tuberculous and tuberculously disposed cases. There are chapters on Fresh-Air Schools, Open-Air Gymnastics, and the Hardening of Children.

Drs. Zinn and Katz have written a suggestive monograph in which they review the evidence available concerning the multiple biological properties of the skin, and then concentrate on the cutaneous administration of tuberculin.[3] It is shown that tuberculin reactions may be specific and non-specific. The authors prefer sub-epidermal to subcutaneous inoculation; their advocacy of tuberculin-therapy is qualified by reference to its obvious limitations.

Dr. Pinner has provided a serviceable monograph which is a reliable review of the serological diagnosis of tuberculosis.[4] It is clear that much further investigation is required concerning the biochemical constitution of the tubercle bacillus before the serological effects of its antigens can be accurately estimated and understood.

The last volume of the "Annals of Pulmonary Tuberculosis from

[1] "Overcoming Tuberculosis: An Almanac of Recovering," by Gerald B. Webb, M.D., Consulting Physician, Cragmor, Glockner, Sunnyrest, and the National Methodist Episcopal Sanatoria, etc.; and Charles T. Ryder, M.D. Third edition, revised. Pp. xiii + 80 + chart sheets. New York City: Paul B. Hoeber, Inc., 76, Fifth Avenue 1927. Price $2.00.

[2] "My Sun-Bathing and Fresh-Air System," by J. P. Muller, ex-Lieutenant in the Danish Army. Pp. 126, with 54 illustrations. London: Athletic Publications, Ltd., 4-8, Greville Street, E.C. 1. 1927. Price 3s. 6d.

[3] "Biologische Einwirkung von der Haut auf den gesunden und Tuberkulösen Organismus: Kutane Tuberkulin—Diagnostik und Therapie" [The Biological Action of the Skin in the Healthy and Tuberculous Organism: Cutaneous Tuberculin—Diagnosis and Therapy], by Professor Dr W. Zinn and Dr. G. Katz. Pp. 211. A member of the series of Tuberkulose-Bibliothek, No. 27. Leipzig: Johann Ambrosius Barth. 1927. Price Rm. 12.

[4] "Die Serodiagnose der Tuberkulose" [The Serological Diagnosis of Tuberculosis], by Dr. Max Pinner. Pp 88. Issued in the Tuberkulose-Bibliothek, No. 28. Leipzig: Johann Ambrosius Barth. 1927. Price Rm. 5.

the Tornu Hospital in South America" contains articles on tuberculosis, and chiefly relating to noteworthy cases reported in the practice of the hospital.[1] The collaboration of the physician and the ophthalmologist has assembled interesting information on the ophthalmic complications that may arise in pulmonary tuberculosis, and reference is made to a case of amaurosis occurring after artificial pneumothorax.

"Man and Sunlight" has passed through many editions in German, and at last an English edition is available.[2] Dr. Saleeby, who provides an introductory foreword, indicates that the Dean of St. Paul's, Dr. Inge, has approved its publication, although apparently there has been doubt in the minds of some as to the reception which Mrs. Grundy and some English readers would accord to this monograph in praise of nakedness and free exposure of the body to the health-giving and healing influence of fresh morning air and sunlight. The book is certainly a convincing exposition of the benefits of helio hygiene, and points the way to exercises whereby a high standard of physical and æsthetic development may be attained. Major Surén is an enthusiastic, sincere, and honest exponent of the delights and blessings of nudity. The illustrations of nude subjects undergoing aerotherapy and heliotherapy, or engaging in rhythmic gymnastics and other exercises, are impressive, and show that in Germany the cult of nakedness and the practice of exposure to light and air has advanced many stages further than in this country.

The Dental Board of the United Kingdom is rendering a valuable national service by the issue of books, leaflets, and posters dealing with the essentials of popular education relating to dental hygiene. An excellent manual has recently been prepared primarily for teachers, but it also deserves the consideration of all thoughtful citizens desirous of assisting in improving the teeth of the children of our country.[3] The book presents in clear language and with wisely selected pictures essential anatomical and physiological points regarding the mouth and its teeth. There are excellent chapters on the causation, prevention, and treatment of dental disease. A special chapter is devoted to the very important subject of inflammation of the gums and tooth-sockets. Here is a publication which should be studied by all teachers and tuberculosis officers, and superintendents of sanatoria would do well to arrange that copies should be available for all who are dealing with children in open-air schools or elsewhere. The volume is artistically produced and beautifully printed on art paper.

The Hellenic Travellers' Club is fulfilling a notable service by the carrying out of instructive and enjoyable cruises to Greece and other centres of classic interest. The latest volume of proceedings contains a series of valuable lectures and articles by writers of distinction, and including the Rev. Dr. W. A. Wigram, Dr. Cyril Norwood, the Rev.

[1] "Anales de Tisiologia del Hospital Tornu" [Annals of Pulmonary Tuberculosis from the Tornu Hospital]. Year IV., No. 5, December, 1926. Pp 148.

[2] "Man and Sunlight," by Hans Surén, formerly Chief of the German Army School for Physical Exercise. Authorized translation from the sixty-seventh edition by David Arthur Jones, M.C., B.A.; with a Foreword by C. W. Saleeby, M.D., Ch.B., F.Z S., F.R.S.E. Pp. x+199, with 127 illustrations. Slough, Bucks: The Sollux Publishing Company. 1927. Price 6s.

[3] "Hygiene of the Mouth and Teeth." Pp. 85, with forty-one figures. London: The Dental Board of the United Kingdom, 44, Hallam Street, W. 1. 1927. Price 1s. 6d.

Dr. A. E. J. Rawlinson, Dr. W. H. D. Rouse, and the Rev. Dr. R. F. Horton.[1] The volume is effectively illustrated. There is a list of members, together with constitution and rules of the club.

A new edition of the Ajax guide to sunlight treatment has just been issued.[2] It is a handsome crown quarto volume, printed on fine art paper, elaborately illustrated, and containing particulars regarding the nature, application, and uses of ultra-violet irradiation. Those about to instal an equipment for artificial sunlight as a therapeutic agent will find in this new edition much practical information regarding lamps and their employment, dosage, and other matters connected with effective actinotherapy. There is a serviceable glossary of technical terms, and a tabular list of morbid affections which can be advantaged by sunlight treatment.

A new edition has recently been issued of the illustrated and informing "Guide to the Spas of France," published by La Commission Médicale des Stations Thermales de la Office Nationale du Tourisme.[3]

The justly famous house of Allen and Hanburys have issued, in handsome volume form and effectively illustrated, a history of the development of the firm from the Old Plough Court Pharmacy established in 1715 to their many and elaborate enterprises of today.[4] The work tells a wonderful story of scientifically directed adventures which will appeal to medical advisers and all interested in the progress of British pharmacy.

The current number of *Sunlight* contains signed articles and notes of much interest to students of heliotherapy and actinotherapy.[5] The frontispiece consists of a portrait of Niels Ryberg Finsen, regarding whom Dr. C. W. Saleeby furnishes a sympathetic sketch. Dr. Leonard Hill writes on "Green Food and Human Health," and Dr. A. C. Jordan has an illustrated communication on "Summer Modes for Men." Mr. A. J. Green deals with "Open-Air Schools for Delicate Children," and pictures indicate the life of the children at Stowey House Open-Air School. There are illustrations of the new Vita-glass Sunlight Pavilion at the Stannington Children's Sanatorium.

An article on "The Sanatorium Treatment of Tuberculosis," by A. Steedman, appears in the *Empire Review* for December, and presents many practical points from the patient's standpoint which deserve the consideration of all medical superintendents of sanatoria in this country.

[1] "Proceedings of the Hellenic Travellers' Club, 1927." Pp. 158. London: 5, Albany Courtyard, Piccadilly, W. 1. Particulars of the April, 1928, cruises in the s.s. *Asia* and s.s. *Lotus* can be obtained on application to this address.

[2] "Sunlight Treatment." A concise guide for the use of ultra-violet irradiation in actinotherapy Second edition. Pp. 87, with numerous illustrations. London: Ajax, Ltd., 117, Central Street, E.C. 1. 1927. Price 4s. 6d., post free 5s.

[3] A copy of "The Spas of France" can be obtained by any medical adviser on making application to the Office for Great Britain of the Français du Tourisme, 56, Haymarket, S.W. 1.

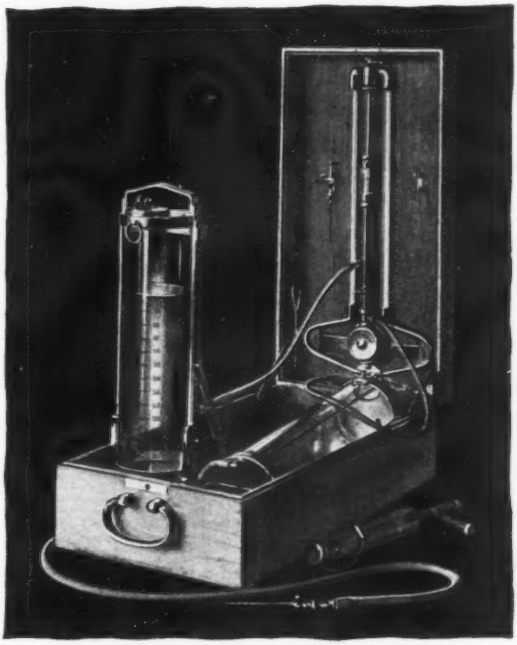
[4] "Plough Court: The Story of a Notable Pharmacy, 1715-1927." Compiled by Ernest C. Cripps. Pp. xviii+227, with 43 illustrations. London: Allen and Hanburys, Limited, 37, Lombard Street, E.C. 3. 1927.

[5] *Sunlight:* A Journal of Light and Truth, is the official organ of the Sunlight League, 29, Gordon Square, W.C. 1. Price, each number, 1s.

PREPARATIONS AND APPLIANCES.

THE ROEPKE PNEUMOTHORAX APPARATUS.

ARTIFICIAL pneumothorax has found much favour at home and abroad, and is now generally approved as a serviceable means for treating selected cases of pulmonary tuberculosis by collapse-therapy. A number of ingenious forms of apparatus have been devised for the effective introduction of a safe gas into the pleural cavity, but one of the best is the new apparatus planned by Professor Roepke and made



THE ROEPKE PNEUMOTHORAX APPARATUS.

by the well-known house of B. Braun of Melsungen in Germany.[1] The accompanying illustration indicates its chief features. It is particularly suited to meet the requirements of hospitals and sanatoria, where a considerable number of patients have to be dealt with and where time and service have to be economized. In the production of an artificial pneumothorax and for refills, either air, carbon dioxide, or nitrogen is employed, but the gas is purified by passing through a disinfecting solution and a dry filter. Pressure is produced and regulated by means of a column of disinfecting fluid, and this is easily

[1] The pneumothorax apparatus of Professor Roepke can be demonstrated by the British Representatives, Adair, Dutt and Co., Ltd., 47, Victoria Street, Westminster, S.W. 1.

gauged. In using the apparatus, only the simplest manipulation is required on the part of the operator—practically the turning of a tap. By means of Professor Roepke's ingenious equipment continuous working is possible, and that with accurate regulation and ready registration. The apparatus is fitted into a strong wooden box, and this is easily and safely portable. The price complete is £12 12s.

HYGIENIC APPLIANCES AND THERAPEUTIC PREPARATIONS.

The TUBUNIC AMPOULE-SYRINGE is a scientific novelty which meets a real need, and will be welcomed by tuberculosis officers and practitioners generally.[1] It provides reliable, ready, and easily employed means for the instantaneous administration in any place and under any conditions of a variety of medicaments by aseptic hypodermic injection. The appliance combines ampoule, syringe, solution, and needle, all in one unit. The solution is contained in a collapsible tube of pure tin, to which is permanently attached a sterilized hypodermic needle. The medicament is hermetically sealed in the collapsible reservoir until the moment of use, and then by the use of a stylet contained within the bore of the needle the receptacle is punctured, the solution enters the needle, and the injection is completed by simply squeezing the barrel. Outfits containing 4 and 12 ampoule-syringes are now available in metal cases, an ideal arrangement for carrying anywhere a set of medicaments in the pocket or bag.

A POCKET CASE OF TUBUNIC AMPOULE-SYRINGES.

BEHRING'S VENULE and SERULE are attracting much attention, and promise to facilitate greatly diagnostic and therapeutic procedures.[2]

Venule before use.

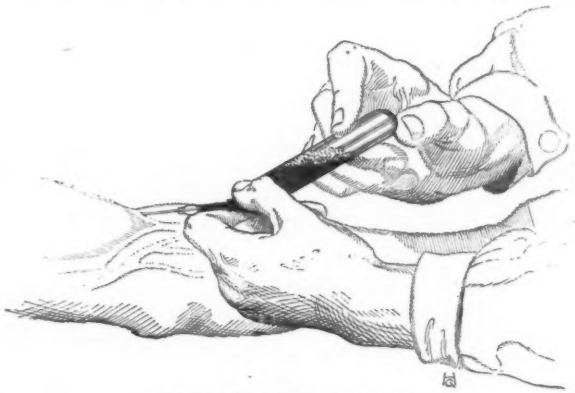
Venule in use: sectional view, with valve opened.

BEHRING'S VENULE.

[1] Particulars regarding the Roche Tubunic Ampoule-Syringe can be obtained from the Hoffmann-La Roche Chemical Works, Ltd., at their London "Roche" Laboratories, 51, Bowes Road, N. 13.

[2] Full particulars regarding the Behring Venule and Serule can be obtained from W. Bredt, 41, Great Tower Street, E C. 3.

The venule is an aspiration-syringe for collecting blood or other fluids of the body under sterile conditions and with a minimum of manipulation. By simply breaking the glass-capillary covering of the cannula the venule is rendered ready for an aseptic puncture of vein or cavity. The serule is a novel type of simple ampoule and syringe combined in



BEHRING'S VENULE IN USE.

one, and thus providing for the injection of any desired serum with perfect ease and certainty and no risk of contamination. The chief features of the Behring venule are indicated in the accompanying illustrations.

Reliable syringes for hypodermic medication, serum therapy, exploration, etc., are among the most important articles of a doctor's equipment. We would direct special attention to the syringes manufactured by the house of B. Braun of Melsungen.[1] These syringes are made of specially strong and durable glass, can be boiled without damage, and have a metal nozzle which has the same coefficient of expansion as the glass, and therefore no danger of breakage is incurred during sterilization. The presence of a brake-ring is a valuable feature of these syringes, for it prevents the piston from slipping out when aspirating. The tuberculin syringe is excellent, and is supplied with a solid piston of coloured or achromatic glass, has a brake-ring, is graduated to $\frac{1}{20}$ c.cm., and has a capacity of 1 c.cm.

THE BRAUN HYPODERMIC SYRINGE.

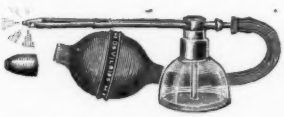
THE BRAUN TUBERCULIN SYRINGE.

Summit Needles are ideal for all forms and sizes of record, hypodermic, serum, and exploring syringes, and can even be fitted to glass syringes with Luer cone and wing

[1] Prices and particulars of the various Braun syringes can be obtained on application to the British agents, Adair, Dutt and Co., Ltd., 47, Victoria Street, Westminster, S.W. 1.

mounts.[1] The Summit needle is made all in one piece and has a converging bore which makes feeding with the wire a simple matter. The junction is readily made fluid-proof, and there is no danger of the needle becoming dislodged. The needles are of the finest workmanship and their merits are at once evident to all who use them.

The De Vilbiss Spray provides a particularly reliable and effective means for the application of oily or aqueous medicaments in the form of a fine spray.[2] It is of the greatest service in treating consumptive and other patients in whom catarrhal and other morbid conditions exist in the pharynx or larynx. The general appearance and construction of the De Vilbiss Spray is shown in the accompanying figure. This spray can also be used in the sick-room for the distribution of deodorizing fluids or pleasing perfumes.



THE DE VILBISS SPRAY.

Iodine is now so extensively used in hospital, sanatorium, and general practice that the medical adviser has to arrange to have it constantly at hand. This can now be readily arranged by means of the new Braun Pocket Iodine Container and Flask,[3] the former

THE BRAUN POCKET IODINE CONTAINER.

THE BRAUN POCKET IODINE FLASK.

being most convenient for the pocket or bag, the latter for the consulting room or dispensary. The accompanying illustrations are self-explanatory. By means of these receptacles a reliable iodine solution is always available, and in a way which obviates leaks, stains, and waste.

A reliable rubber hot-water bottle is a necessity for practically all patients and delicate persons, especially at this time of the year, and particularly for cases undergoing open-air treatment. Among the best are the Reliance Hot-Water Bottles.[4] These are made in a number of grades and sizes of selected British-grown rubber, and in

[1] The Summit Needles are supplied by Van Lier Brothers, 3-4, Eden Street. N.W. 1. Prices: Hypodermic sizes 1-20, 3s. 6d. per dozen; or 36s. per gross.

[2] The De Vilbiss Spray is manufactured by the De Vilbiss Company, Ltd., West Drayton, Middlesex.

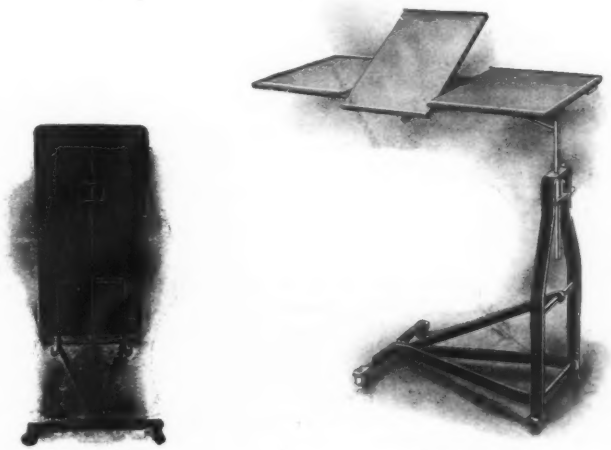
[3] The Braun Iodine Pocket Container and Flask can be obtained from the British Agents, Adair, Dutt and Co., Ltd., 47, Victoria Street, Westminster, S.W. 1. Price 2s. 6d. and 4s. 9d. respectively.

[4] Particulars and prices of the Reliance Rubber Bottles can be obtained from the manufacturers, the Reliance Rubber Company, Ltd., Formosa Street and Amberley Road, Paddington, W. 9.

workmanship, colour, texture, and general effectiveness leave nothing to be desired. Each is moulded from one seamless piece of pure rubber and fitted with a perfect screw-stopper; and, if required, a cover can be supplied in a variety of materials and different colours.

As a gift for doctor, nurse, and patient nothing can be better than a WATERMAN'S WRITING SET, consisting of pen and pencil in artistic case.[1] A Waterman pen is an indispensable companion for every medical practitioner, and most patients, especially those undergoing open-air treatment, find it indispensable. We have constantly used a Waterman for many years, and should be lost without this ever-present unfailing equipment. The Waterman Ideal Fountain Pen can be obtained in various models—regular, safety, and self-filler—in different sizes, colours, and varieties of adornment, but all of equal excellence, and any type of nib can be provided. The latest kind is the mottled ripple rubber fountain pen, which is proving very popular. For everyone who makes use of pen, ink, and paper a Waterman Ideal Fountain Pen is a necessity. The new Waterman Pencil makes a serviceable companion for the pen. It is neat and effective, has a rigid point, and is available in black or mottled form; and, if desired, is fitted with a nickel clip.

The SIMPLEX TABLE, as indicated in the accompanying illustrations, provides an adjustable bed table and book-rest for invalids, patients,



Folded. Open.

THE SIMPLEX ADJUSTABLE BED TABLE.

and other bed-fast cases, which only needs to be used to be appreciated.[2] This table is ingeniously designed and effectively made, being adjust-

[1] All varieties of the Waterman Ideal Fountain Pen and Pencil can be seen and demonstrated at Messrs. L. G. Sloan, Ltd., "The Pen Corner," 41, Kingsway, W.C. 2, from whom illustrated price lists may be obtained on application.

[2] The Simplex Adjustable Bed Table is supplied by Peter Jones, Ltd., Sloane Square, S.W. 1.

able and so constructed as to be raised or lowered so that it can be placed before a patient in any type or height of bed. The Simplex Table meets a real need at a low price and should be available in all hospitals, sanatoria, and nursing homes. One of these tables can be seen in use at the sanatorium for tuberculous children at Harpenden.

THE PENCIL ECONOMIZER is a neat little novelty which can be readily carried in the pocket[1] It is a simple pencil holder made of para rubber, fitted with gilt band, and having an arrangement for holding rigidly the short stick of pencil which otherwise would be useless and wasted.

Messrs. Johnson and Johnson have made a speciality of FIRST-AID SUPPLIES. An emergency Outfit, House-Kit, or First-Aid Cabinet should be available in all workshops, schools, or other centres where grown-ups or children are to be found.[2] Accidents in these motoring days are constantly happening, and some form of outfit should be carried in every car. Scouts, guides, campers, and travellers of all sorts should know how to obtain and employ first-aid outfits. In connection with sanatoria, dispensaries, open-air schools, and other institutions a well-equipped outfit should always be available.

SILVALUX, the gas-filled opal electric lamps, are admirable for use in doctors' consulting rooms and for service in laboratories, hospitals, and sanatoria, for when in use they provide a ball of brilliant light which affords well-diffused illumination without glare and producing no irritation for the eyes.[3] These lamps have an inner lining of clear crystal glass, and an outer casing of pure white opal glass. We have used these lamps with much satisfaction.

Messrs. Steele and Marsh, the well-known Bath firm of manufacturing chemists, have recently introduced the BERGEN NORWEGIAN PINE BATH SALTS, a delightful cleansing, sedative, sleep promoting restorative agent for the hot bath.[4] The salts can be added to the general bath, making hard water soft and silky to the skin, or they can be employed as a local bath for tired, tender, or aching feet. Doctors, nurses, and other hard workers, and also motorists, travellers, sportsmen, and others who become fatigued in the pursuits of play and pleasure, will appreciate this restorative agent. In the treatment of patients the subjects of insomnia and other nervous disorders, as well as some cases of tuberculosis and other chronic diseases, this new form of Bath Salts will be found to be a valuable therapeutic accessory. We understand that the base of the preparation is sea salt to which has been added Norwegian pine oil, certain air oxidized terpenes, camphor, thymol, etc. The solution obtained on dissolving the salts is alkaline, antiseptic, deodorant, and diffuses through the air of the bathroom a pleasing, purifying vapour. We anticipate a far-extending popularity for these bath salts of Bath.

[1] The Pencil Economizer is supplied by the London Letter File Company, 143, Farringdon Road, E.C. 1. Specimen sent post free 9d.

[2] Particulars regarding various forms of First-Aid Outfits can be obtained on application to Johnson and Johnson (Great Britain), Ltd., 106, Golden Lane, E.C. 1.

[3] Full particulars regarding the Silvalux lamps can be obtained from the makers, Siemens Electric Lamps and Supplies, Ltd., 38-39, Upper Thames Street, E.C. 4.

[4] Full particulars regarding the Bergen Norwegian Pine Bath Salts can be obtained from the manufacturers, Steele and Marsh, 6, Milsom Street, Bath. Each packet costs 6d., and a course for twelve baths is sent post free for 6s. 3d.

ESMOLIN is a local application which has proved of value in the treatment of certain so-called rheumatic affections, neuritis, fibrositis, and other conditions associated with muscular and nervous derangements.[1] It contains eugenol, which is recognized as a reliable agent in soothing exposed and irritable nerves, oil of cajuput, which is extensively used by the natives of British India for rheumatic complaints and stiffness of muscles and joints, oil of wintergreen, citronella, and rectified paraffin. Esmolin is an elegant pharmaceutical preparation possessing penetrative powers when suitably applied to the cutaneous surface of the body. In some cases its action is rendered more certain by warming the affected part by means of hot fomentation and then painting on Esmolin with a camel's hair brush or wad of cotton-wool. For the relief of many aches and pains met with in sanatorium patients and other tuberculous cases undergoing open-air treatment there is no doubt Esmolin will be very useful.

TIN-OX is a new British tablet preparation of physiologically pure tin and stannic oxide, which is proving of service in the treatment of certain cases of acne, carbuncles, and boils.[2]

Professor W. C. Dixon, F.R.S., of Cambridge, in his recent lecture on "The Tobacco Habit," has set forth in interesting details the present position of pharmacological knowledge regarding tobacco.[3] As Professor Sir Humphry Rolleston has recently shown, some persons have an idiosyncrasy to tobacco.[4] The American Committee to Study the Tobacco Problem has published several valuable studies on the subject, and in the latest is an elaborate annotated bibliography.[5] Many tuberculous patients are confirmed cigarette smokers, and when admitted to hospitals and sanatoria or treated in their own houses or elsewhere, a withdrawal of tobacco generally leads to some psychological disturbance which may even amount to serious distress. In dealing with these cases, as indeed in directing the treatment of all patients, it is essential that the medical adviser should make inquiries regarding smoking. Not only should the amount of tobacco used be controlled, but the form and quality supervised. Messrs. Abdulla and Co., the well-known specialists in tobacco, make a feature of cigarettes for medical advisers and their patients. They have been made of carefully blended tobaccos, and can be obtained in specially mild, non-irritating varieties. These are particularly suited to meet the requirements of delicate and tuberculous patients. The Abdulla cigarettes can be obtained in artistic cabinets, which prove most acceptable presents.[6]

[1] Particulars regarding Esmolin can be obtained on application to the Esmolin Company, Ltd, 110, Charing Cross Road, W.C. 2.

[2] Particulars regarding "Tin-Ox" can be obtained from the manufacturers, John Bell, Hills, and Lucas, Ltd., Oxford Works, Tower Bridge Road, S.E. 1.

[3] See *British Journal of Inebriety*, January, 1928.

[4] "Idiosyncrasies," by Sir Humphry Rolleston, Bart., K.C.B., F.R.C.P. London: Kegan Paul, Trench, Trübner and Co., Ltd. 1927. Price 2s. 6d.

[5] "Tobacco and Physical Efficiency: A Digest of Clinical Data," by Pierre Schrumpf-Pierron, M.D. New York: Paul B. Hoeber, Inc. 1927. Price $1.85.

[6] Messrs. Abdulla and Co., Ltd., 173, New Bond Street, W. 1, will be pleased to furnish medical practitioners and readers of this *Journal* with particulars regarding their cigarette specialities.

THE OUTLOOK.

THE EMPLOYMENT OF THE TUBERCULOUS.

TUBERCULOSIS is a medico-sociological problem in which economic considerations loom large. Even under the best system for the provision of institutional treatment and subsequent after-care, unless the patient is to become a permanent dependent, an answer must be found to the insistent question, How may a tuberculous subject work in order that he may live? And in what way can desirable remunerative employment be provided? Much valuable information will be found in No. 7 of the Technical Series of brochures published by the American National Tuberculosis Association, and written by Drs. H. A. Pattison and P. P. Jacobs.[1] This monograph furnishes a concise survey of the chief experiments in finding sheltered employments for tuberculous cases in the United States, special descriptions being given of the Altro Work Shops in New York City, the Tomahawk Lake Camp in Wisconsin, the Reco Workshop in New York, the Phipps Institute Workshop in Philadelphia, the Central New England Sanatorium and Industrial Colony at Rutland, Massachusetts, the Potts Memorial Hospital at Livingston, New York, and other demonstrations which have been tried in various parts of the United States during the last fifteen years. We commend a study of these suggestive reports to all interested in the industrial and economic aspect of the tuberculosis problem in this country. We venture to reproduce the concluding section of this informing booklet, as it admirably summarizes the chief points which are discussed in the work: "It is a well-recognized fact among tuberculosis workers that sanatorium and hospital treatment without proper after-care supervision is not a complete success. A course of six, nine, or twelve months in a sanatorium, even under most skilful medical supervision, is not in and of itself sufficient as a rule to return the majority of patients to a working livelihood. Studies conducted on sanatorium graduates show that from 27 to 64 per cent. die within five years after leaving the sanatorium, a great majority of them dying within the first two years. As a result, no doubt, of the over-emphasis placed upon the care of the advanced cases following the International Congress of 1908, the United States has developed two glaring defects in its whole institutional tuberculosis programme. The first of these defects is the great difficulty in securing early cases, and the second is the overwhelming number of cases who die within a comparatively short time after being discharged from sanatoria and hospitals, even with favourable prognoses. That there is, moreover, a certain percentage of tuberculosis patients who can adjust themselves to industry without serious mental or physical wrench, is a well-known fact. On the other hand, the great majority of patients seem to find overwhelming difficulty in

[1] "Sheltered Employment for the Tuberculous in the United States," by H. A. Pattison, M.D., and Philip P. Jacobs, Ph D. Pp. 80. New York: National Tuberculosis Association, 370, Seventh Avenue. 1927. Price 25 cents.

this process of adjustment. Various efforts have been made to find a solution to this problem of adjusting the discharged case to industry. One of the most significant and scientific of these was the careful experiment carried on with adequate funds by the New York Tuberculosis and Health Association in maintaining an employment bureau for cases of tuberculosis that had been discharged from sanatoria as apparently cured or arrested. The attitude of the employers with reference to the employment of such men and women was either distinctly hostile or indicated that they could not adjust their business to the needs of the tuberculosis patient. Employers, however well-intentioned, pointed out that they had a certain capital investment in a piece of machinery. They could not allow that machine to be run by a tuberculosis patient from two to four hours a day only, when they could get an able-bodied person to run it eight hours a day. For those tuberculosis patients who could work a full day there was relatively little difficulty of placement, nor was there difficulty in the placement of those who had skilled trades at which they could work part-time. Employment could also be provided for patients who could carry on home work. For the rank and file of unskilled workers, both male and female, however, the problem of adjustment to normal industry was found to be extremely difficult. The real problem of after-care involves a frank recognition of the fact that here is a group of men and women who cannot be treated as normal workers. They must be considered as physically sub-standard, and their work must be adjusted to their physical capacity to do it. How shall this be accomplished? If it cannot be done in ordinary industry, is the sheltered workshop or agricultural or industrial colony a solution of the problem? It would probably be foolish to suggest that these institutions are *the* solution. There probably is no one solution. If, however, the experience of those organizations discussed in the preceding chapters counts for anything, it would seem to indicate that there are possibilities in the well-conducted sheltered employment of tuberculous patients that are probably beyond the imagination even of its most enthusiastic proponents at the present time. It is also perfectly obvious from such community experience as that in Saranac Lake, Colorado Springs, or Albuquerque, New Mexico, where an overwhelming proportion of the population have tuberculosis or have come to these centres because of that disease, that the colonization of men and women handicapped with tuberculosis is not at all an impracticable proposition. Here are cities and villages of a perfectly normal American type, where it is safe to estimate that from three-quarters to nine-tenths of the business is carried on by men and women who have or have had tuberculosis. The very atmosphere of these places gives in a measure something of the flavour of sheltered employment. It is probably not too fanciful to hope that at the Ida Potts Memorial, at the Central New England Sanatorium, or at the Detroit Tuberculosis Colony, or at similar institutions now being planned in various parts of the country, there shall within the next twenty-five years spring up American villages and towns populated by men and women who have been drawn there because of tuberculosis. In these towns a more favourable environment for the man who is graduating from the sanatorium will be found, and here it will be easier to complete the cure than in the hurly-burly of a large metropolitan centre like New York, Chicago, Detroit, or

similar cities. Sheltered employment for the tuberculous is a requirement that must be reckoned with by American communities throughout the length and breadth of the United States."

NOTES AND RECORDS.

The *British Journal of Actinotherapy* is to be congratulated on the success of the First International Exhibition and Conference relating to Light and Heat particularly in their bearing on Medicine, Surgery, and Hygiene, which was held under its auspices in the Central Hall, Westminster, November 30 to December 16. An excellent account of this important gathering appears in the January issue of the *British Journal of Actinotherapy*.[1]

Under the auspices of the Royal Institute of Public Health, Sir Henry Lunn and Alpine Sports, Limited, conducted a large and representative medical party on a tour of the chief Swiss Tuberculosis Stations and Sanatoria, December 18-31. Among the centres visited were Bâle, Zurich, Arosa, Davos, St. Moritz, Maloja, Montana, and Leysin. The visitors were most generously received by their Swiss confrères, and clinical and other demonstrations of exceptional interest and value were provided. It is hoped that further visits may be arranged.

Sir George Newman's latest report as chief medical officer of the Board of Education is a volume of exceptional interest and value.[2] It contains a comprehensive account of the present position and work of the School Medical Service, and contains special chapters on the Pre-School Child, the Debilitated Child of Subnormal Health, Acute Rheumatism in School Children, Health Teaching in Schools, Games and Playing Fields, and Investigation and Research. An appendix contains a section on Artificial Light Treatment, in which helpful suggestions are made regarding the recording of results. Sir George Newman's reports are always of great value, and full of information and inspiration. The last is marked by a statesmanlike simplicity and directness, and deserves to be studied not only by medical advisers, but by all citizens anxious to further the welfare of the commonwealth.

The Ministry of Health has recently issued through H.M. Stationery Office a revised List of Sanatoria and other Residential Institutions for the treatment of persons suffering from tuberculosis and resident in England and Wales, with the names of the Administrative Counties and County Boroughs in which the institutions are situate. (Price 2d.)

The Ministry of Health has prepared a new Circular regarding the Treatment of Ex-Service Men Suffering from Tuberculosis (Circular 840), and a new Memorandum as to Arrangements for the Provision of Residential Treatment and other Services relating to Tuberculous Ex-Service Men in England so far as chargeable to the Ministry of Pensions [Memo. 30/T. (Revised)].

The Scottish Board of Health has recently published in brochure

[1] The *British Journal of Actinotherapy* is published monthly by the Actinic Press, Ltd., 17, Featherstone Buildings, High Holborn, W.C. 1. Annual subscription £1 1s.

[2] "The Health of the School Child": Annual Report of the Chief Medical Officer of the Board of Education for the Year 1926. London: H.M. Stationery Office. 1927. Price 1s. 6d.

form a valuable statement regarding Ultra-Violet Ray Therapy,[1] in which the following appears: "There are differences of opinion of the value of irradiation in the treatment of the deeper tuberculous lesions, but generally its value in the less severe forms of non-pulmonary tuberculosis is unquestioned. In pulmonary cases the results have not been discouraging, but much more work will require to be done before any definite opinion of its value in these cases can be expressed." Every medical man employing ultra-violet radiation should study this cautious, suggestive, and informing report.

The Welsh Board of Health of the Ministry of Health has issued "A Report of an Investigation into the Alleged High Mortality Rate from Tuberculosis of the Respiratory System among Slate Quarrymen and Slate Workers in the Gwyrfai Rural District," prepared by Dr. T. W. Wade.

The Scottish Board of Health has re-issued in pamphlet form from the last Annual Report the section "On the Schick and Dick Tests in Diphtheria and Scarlet Fever."

The Ministry of Health has issued communications on "Condensed and Dried Milks" (Circular 827 and Statutory Rules and Orders).

The Dental Board of the United Kingdom, 44, Hallam Street, W. 1, have provided a booklet on "Dental Health Education," giving particulars regarding ways in which Dental Health Education can be assisted by the Board.

An illustrated report has recently been issued by the "Grade A (Tuberculin Tested)" Milk Producers' Association, a copy of which can be obtained on application to the Hon. Secretary, Lieut.-Colonel C. Maddock, C.I.E., M.D., F.R.C.S.E., D.P.H., Foxglade House, Shinfield, Reading.

While large numbers of elementary and secondary schools in all parts of the country continue in a deplorable condition as regards light and air, sanatoria and open-air schools for tuberculous and tuberculously-disposed children are springing up in many districts. An open-air school under the L.C.C. has been opened in St. James's Park for the children of Westminster.[2] The L.C.C. have also established another open-air school at Holly Court, Merton Lane, Highgate, N. 6. The City of Liverpool has recently founded the "Florence Melly" Open-Air School for Normal Children at Walton. The Corporation of West Ham has erected a sanatorium for children on Langdon Hill in Essex. Among new open-air schools recently opened in the provinces, special reference should be made to the Rugworth Open-Air School at Stockton-on-Tees.

The Royal National Orthopædic Hospital has recently opened a new out-patient department, fully equipped, at a cost of £58,500. Particulars can be obtained on application to the Secretary at 234, Great Portland Street, W. 1.

Thirty scholarships are being provided by the Sun Life Assurance Company of Canada whereby salaried tuberculosis workers in Canada engaged in sanatoria or clinics will be assisted in making visits to

[1] "Ultra-Violet Ray Therapy: with Special Reference to the Results Obtained in the Treatment of Certain Diseases." Reprinted from the Eighth Annual Report of the Scottish Board of Health, 1926. Pp. 28. Edinburgh: H.M. Stationery Office. 1927. Price 2d.

[2] A charming account of St. Margaret's Open-Air School appeared in the *Spectator* for November 26, 1927.

research laboratories and tuberculosis institutions in England, France, and Italy, and be able to be present at the forthcoming International Meeting of the Union against Tuberculosis. Further particulars may be obtained from Dr. R. E. Woodhouse, Secretary of the Canadian Tuberculosis Association, Ottawa, Canada.

Dr. A. Stanley Griffith's lecture "On Tuberculosis of Bovine Origin in the Human Subject" is fully reported in "The Proceedings of the National Conference on Maternity and Infant Welfare," published by the National League for Health, Maternity, and Child Welfare for the National Association for the Prevention of Infant Mortality, 117, Piccadilly, W. 1. (Price 2s. 6d.)

Dr. von Pirquet has accepted the Presidency of the Save the Children International Union, and recently visited London and delivered an important address in the house of Mr. and Lady Agnes Peel. A report appears in *The World's Children* for December, published by the World's Children, Ltd., The Weardale Press, 26, Gordon Street, W.C. 1.

The Annual Report of the National Children's Home and Orphanage, the headquarters of which are at Highbury Hill, N. 5, is a charming illustrated booklet, entitled "Builders of the City," and is artistically produced and generously illustrated. It affords information and pictures of child welfare work in the twenty-eight branches of the N.C.H.O., including the sanatorium for consumptive children at Harpenden.

The Joint Tuberculosis Council, the Hon. Secretary of which is Dr. Ernest Ward, Torquay Road, Paignton, Devon, has appointed a Research Committee which is considering the question of disinfection in tuberculosis, and particularly the disinfection of furnished rooms and apartments in hotels and boarding-houses. A special committee is also investigating the subject of training of tuberculosis officers.

The next meeting of the Tuberculosis Society will be held on January 20, when a discussion will take place on the aims and work of Tuberculosis Care Committees. Arrangements are in progress for the holding of a week-end gathering at Oxford, March 29-31. Further particulars may be obtained from the Hon. Secretary, Dr. G. T. Hebert, Tuberculosis Department, St. Thomas's Hospital, S.E.

The annual general meeting of the Society of Superintendents of Tuberculosis Institutions will be held at 122, Harley Street, on January 20, at 3 p.m. Dr. W. Brand will open a discussion on the pros and cons of tuberculosis propaganda.

The League of Red Cross Societies, 2, Avenue Velasquez, Paris, has issued a communiqué relating to the sixth conference of the International Union against Tuberculosis, which is to be held in Rome, September 25-27, 1928. As at previous conferences, the scientific reports will be restricted to the following three subjects: (1) *Biological.*—Filterable elements of the tubercle virus. (2) *Clinical.*—The diagnosis of infantile tuberculosis. (3) *Social.*—The organization of tuberculosis prophylaxis in rural districts. There will also be conferences on special subjects. Arrangements are being made for visits to health stations, sanatoria, and other institutions dealing with tuberculosis. Further particulars may be obtained on application to Miss F. Stickland, Secretary of the National Association for the Prevention of Tuberculosis, 19, Tavistock Square, W.C. 1.